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Anxiety and control beliefs in adolescents' preventive health decision-making.

Barbara Lee Watters
University of Massachusetts Amherst

ANXIETY AND CONTROL BELIEFS IN ADOLESCENTS' PREVENTIVE HEALTH DECISION-MAKING

A Dissertation Presented

By

BARBARA LEE WATTERS

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Approved as to style and content by:

Paula Pietromonaco

Paula Pietromonaco, Chairperson of Committee

William Darity

William Darity, Member

Robert S. Feldman

Robert Feldman, Member

Harry Schumer

Harry Schumer, Member

Seymour Berger

Seymour Berger, Department Head
Psychology

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ABSTRACT

ANXIETY AND CONTROL BELIEFS IN ADOLESCENTS'
PREVENTIVE HEALTH DECISION-MAKING

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BARBARA LEE WATTERS

B.A., THE PENNSYLVANIA STATE UNIVERSITY

M.S., CORNELL UNIVERSITY

Ph.D., UNIVERSITY OF MASSACHUSETTS

Directed by: Professor Paula Pietromonaco

This study investigated effects of anxiety and control on preventive health decision-making, specifically, regarding contraceptive use and date rape prevention. At Time 1, 196 White undergraduate women, ages 17 to 19, completed a questionnaire assessing anxiety and control over birth control use, unintended pregnancy, date rape, health, and life in general. At Time 2, subjects completed the questionnaire again, and participated in two decision-making tasks, one related to birth control use and one related to date rape prevention. During each, subjects read a short health-related scenario, and imagined themselves in the scenario. Subjects had the option of reading about benefits and risks of taking or not taking preventive action, and finally, were asked to choose the action that they believed would be best for them in that situation.

Decision-making quality was measured in time spent reading the information, quantity of information read, organization of information search, and preferences for certain types of information. Higher-quality decision-making was indicated by longer reading time, larger quantity, more organized search, and by lack of preference for certain information over others. Results showed that domain-specific, health-related, and generalized control beliefs influenced decision-making. In the birth control scenario, low control subjects, compared to high control subjects, spent more time making their final decisions, read more of all types of information, read that information longer, and read more prevention and nonprevention benefits. Results were similar for date rape measures, with the exception that low control subjects read more nonprevention benefits and risks. Effects of anxiety on birth control measures were mixed, while date rape measures were not influenced by anxiety. It was concluded that control beliefs and anxiety influence health decision-making, but such beliefs and feelings may take slightly different forms depending on the domain, and depending on one's prior commitment to a decision. The practical implications of these findings were discussed.

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LITERATURE REVIEW

Statement of the Problem

Two important markers of mature human thought are the abilities to plan ahead and to anticipate consequences. These abilities are particularly crucial in the health domain, for individuals must decide whether to plan ahead and engage in behaviors that will help protect their health. Health professionals, schools, government agencies, and many parents seek to promote positive health habits in even the youngest of children, hoping that these habits continue throughout life. Unfortunately, individuals of all ages often neglect to perform preventive health behaviors (PHBs).

Making a decision about performing a PHB is influenced by a complex interaction of beliefs, values, and emotions. An individual must first notice, either spontaneously or on the advice of others, that particular behaviors will either prevent negative outcomes or facilitate positive ones. Belief that one has potential control over such outcomes seems to be necessary, and possession of adequate health information is a prerequisite. Finally, a moderate amount of concern or anticipation may be helpful to drive this process. Given these beliefs, values, and emotions, an individual then is faced with weighing advantages and

disadvantages of numerous alternative courses of action that are available, and choosing among those alternatives. The ultimate goal is to make a systematic and informed decision that will enhance one's health.

One health decision that has received a great deal of attention in recent years is teenage contraceptive use or nonuse. Teen pregnancy seems to be a widespread problem that has serious personal, social, and economic ramifications for all involved. Further, studies in this area have not been quite as systematic as studies of other health behaviors, perhaps because of the sensitive nature of the topic. In Western culture, many things pertaining to sexuality seem to cause shame and embarrassment, and thus, often are not amenable to systematic decision-making. However, it is reasonable to assume that the processes involved in contraceptive decision-making are similar to those of other preventive health decision-making, and that the psychological antecedents leading to effective or ineffective decision-making also are similar. A great deal is unknown regarding the nature of these antecedents and the manner in which they may interact in the decision-making process.

The purpose of the present study was to investigate control expectancies as moderators of anxiety in preventive health decision-making, specifically, in decisions about contraceptive use or nonuse. Several theoretical questions

are relevant: What is the role of anxiety in cognitive organization and decision-making? What is the role of control expectancies in decision-making in the health domain? The study was designed to extend Janis and Mann's (1977) conflict model by clarifying the nature of the interaction between anxiety and control expectancies in decision-making, and by examining the resulting effective and ineffective decision-making patterns.

Theoretical Background

A Model of Decision-Making

Much of the recent decision-making literature has drawn upon the conflict model of Janis and Mann (1977). In the model, the authors contend that every important, self-relevant decision involves evaluating numerous risks and benefits associated with numerous alternative courses of action, and thus, is accompanied by considerable "psychological stress" (p. 50) -- guilt, shame, or anxiety. Such stress is aroused in anticipation of important goals not being met, and of costs outweighing benefits, as a result of a particular course of action. These possibilities are salient if the individual is committed to a present course of action, especially when discontinuing such action may meet with self or social disapproval. In addition, stress is aroused over the possibility of losing

one's freedom to choose a course of action due to time and resource (personal and environmental) constraints.

The Decision-Making Process

Systematic decision-making is thought to involve a five-stage process: appraising the challenge, surveying alternatives, weighing alternatives, deliberating over a commitment, and adhering to a commitment. A "decisional balance sheet" may be used to analyze a decision-maker's attention to risks and benefits of the various behavioral alternatives considered at each stage.

Stage 1. In response to challenging negative feedback or information, an individual first appraises the challenge (stage 1) by asking "are the risks serious if I do not change?" If the answer is an unqualified "no," one retains one's original course of action without conflict or further appraisal. If one believes that possible risks exist, one begins to survey alternatives that may be less risky than the present behavior (stage 2).

Stage 2. In stage 2, risks and benefits of different behavioral alternatives ideally are considered. As will be discussed later, this is the stage at which rational decision-making is likely to deteriorate. Each alternative is evaluated initially as to whether it would be acceptable,

and no further consideration of it takes place if this initial evaluation is negative. That is, if the individual believes that a particular alternative would be more risky than one's present behavior, that alternative is discarded automatically. The individual considers alternatives and narrows the pool down to those which seem preferable to the present behavior, that is, those alternatives that would not cause one to incur any greater risks than at present, and that may afford benefits not possible at present.

Stage 3. During stage 3, the individual weighs the benefits and risks of the various alternatives generated at the previous stage. Rather than evaluating alternatives simply on the basis of the number of benefits or risks they have, degrees of importance are assigned to those benefits and risks. For example, although a particular alternative may involve numerous costs in terms of one's own time and effort, a single benefit of social approval may outweigh many costs. Each alternative behavior is "'tried on' mentally" (p. 174) to assess its suitability, and in the process, other benefits and risks may be added to the balance sheet while weights of existing benefits and risks may change. The individual may vacillate between stages 2 and 3, and one may feel considerable stress and dissatisfaction over all of the alternatives. Even if one decides to try an alternative on a trial basis, one may

remain open to new information about the chosen alternative or about others not yet considered.

Stage 4. The individual at stage 4, having chosen a new course of action, must then decide how to implement it. In part, this involves revealing the decision first to most important others, then to friends, then to acquaintances and coworkers. Throughout this process, one must be armed with arguments and contingency plans if one encounters disapproving people or difficult events. The pressure to be consistent with the commitment may be one of the most powerful pressures encountered. Such pressure, including a potential loss of self-esteem and social respect if one renigs on the commitment, may be added to the decisional balance sheet as an incentive to adhere to the decision.

Stage 5. After a "honeymoon period" (p. 177), in which the individual is relatively satisfied with the decision, stage 5 brings challenges to the decision and perhaps negative feedback about it. Whether such challenges occur in the form of social disapproval, or in terms of new information about other alternatives not previously considered, the individual may engage in "postdecisional bolstering" (p. 177). This involves emphasizing the positive aspects and deemphasizing the negative aspects of the decision, while doing exactly the opposite for other

alternatives not chosen. If the challenges and negative information are strong enough, one may experience considerable regret. The individual may need to proceed through the five stages once again in search of a more satisfying solution, one which will ultimately withstand such challenges.

Patterns of Decision-Making

At the second and third stages, surveying and weighing of alternatives, adaptive and maladaptive decision-making patterns arise. Janis and Mann identified five decision-making patterns, one considered adaptive and four considered maladaptive. Adaptive decision-making is manifested as a pattern of vigilance, while maladaptive decision-making may take the form of unconflicted adherence, unconflicted change, defensive avoidance, or hypervigilance.

Adaptive Decision-Making. The vigilant decision-maker experiences moderate anxiety, evaluating information thoroughly and without bias. The individual believes that a change in present behavior is necessary, and that one has sufficient time and personal resources (internal and external) to find a satisfactory (i.e., less risky) alternative behavior. Upon considering apparently "easy" alternatives (i.e., those which come to mind first and offer quick solutions), one still perceives risks, and thus

continues to search for other alternatives. The individual vacillates moderately among alternatives, while systematically assessing benefits and risks of each. The likely result is a commitment to a decision that will withstand challenges and will be easy to defend.

Maladaptive Decision-Making. Hypervigilance involves a belief in the need for behavior change, and a hope of finding a satisfactory alternative; in those ways the pattern is similar to vigilance. However, extreme anxiety and a perception of severe time constraints accompany these beliefs, and thus, result in an ineffective, indiscriminant search of information. The individual's attention is focused exclusively on the threat itself, and one is unable to accurately evaluate the probability or seriousness of that threat. A behavioral alternative that promises immediate relief is often adopted, as very simple-minded decision rules are employed. The unfortunate result is a decision about which the individual experiences considerable regret; one will likely feel just as entrapped and threatened as with the previous course of action, and will be quite vulnerable to any negative information (Janis, Defares, & Grossman, 1982).

The defensive avoidant individual feels extreme anxiety when faced with an important decision, similar to the hypervigilant individual. But a defensive avoidant pattern

is distinguished by biased scanning of information and alternatives, as well as by a lack of hope of finding a better, more satisfactory alternative to her present behavior. Janis and Mann employed some of the language of Festinger's cognitive dissonance theory to describe defensive avoidance, but pointed out that the manifestations of dissonance (e.g., bolstering, discounting, and so forth) can occur both before and after a decision has been made. Janis and Mann focused on what occurs while alternatives are being considered, before a commitment is made.

A defensive avoidant pattern may result in one of three strategies. The individual may choose to procrastinate, by ceasing search and evaluation of alternatives and by postponing any decision whatsoever. Rather than procrastinating, one may get other people involved and shift the responsibility on to them. That is, one may decide to adopt someone else's choice or to let someone else "take care of me." Finally, one may engage in one or more bolstering tactics regarding a particular course of action: exaggerating benefits and ignoring risks, finding good aspects of any negative consequences, temporal distancing of negative consequences, minimizing social surveillance, or projecting responsibility for the choice onto external pressures. Any one of these strategies would result in a biased search of alternatives and a premature commitment to an ineffective yet seemingly "easy" choice.

Little or no anxiety is seen in the last two maladaptive patterns of decision-making: unconflicted adherence and unconflicted change. The unconflicted adherence pattern involves an indifferent adherence to "habit." In response to communications about some potential threat, the individual perceives susceptibility to the threat to be negligible, and/or perceives the severity of the threat itself to be tolerable. One may assimilate new information in an unbiased manner, but lack of interest, coupled perhaps with a perception of minimal present risk, result in behavioral inertia.

Unconflicted change involves an equally indifferent change to a new course of action without consideration of potentially better alternatives. The individual realizes that one's present behavior must be changed, but rather than becoming sufficiently aroused to seek and evaluate alternatives, one uncritically adopts a recommended course of action.

In sum, Janis and Mann's model outlines a five-step decision-making process which may be facilitated or hindered by anxiety. Among the issues that an individual must consider are susceptibility to a negative outcome, severity of a negative outcome, benefits and risks of taking preventive action, benefits and risks of not taking preventive action, and adequacy of personal resources for taking preventive action. (Note that some of these issues

are similar to those outlined in the Health Belief Model; e.g., see Janz & Becker, 1984.) The anxiety that an individual may feel over being faced with making a decision may result in less than veridical assessments of these important issues.

The model is clear in its specification of anxiety's role in decision-making. However, as will be discussed later, another factor -- namely, perceived control -- is likely to interact systematically with anxiety to produce the decision-making patterns that Janis and Mann described.

Role of Anxiety in Cognitive Functioning

As can be seen in the discussion of Janis and Mann's model, negative affect, in the form of shame, guilt, or anxiety, is influential in determining the course of the decision-making process. Although the process of surveying alternatives and attending to information may seem overly "cold" or rational, the authors emphasize that their model is "intended to take account of the influence of unpleasant emotions on intellectual judgments when human beings are required to make decisions on highly ego-involving issues" (1977, p. 46).

The present research focuses on one form of negative affect, namely, anxiety. Anxiety probably arises in the earlier stages of decision-making, during anticipation of an uncertain and potentially threatening outcome. As will be

discussed in this section, threat and uncertainty are defining features of anxiety; further, Janis and Mann's description of anxiety's effects on decision-making parallel results from general research on anxiety and cognitive functioning.

Definitions of Anxiety

Anxiety shall be defined here as an anticipatory, aroused state following "the appraised possibility of harm" (Lazarus & Averill, 1972, p. 252), when that harm is poorly-defined, and when the individual either has no ability to respond to the harm or experiences conflict between several, opposing responses to it (Epstein, 1972).

A review of anxiety research spanning several decades (Phillips, Martin, & Meyers, 1972) revealed a paradigm for understanding the factors contributing to anxiety. The authors outlined proximal (direct) and distal (indirect) antecedents of anxiety, originating both in the person and in the situation; identifying proximal antecedents will be particularly useful in the present work. A situation in which an individual's goals potentially will not be satisfied, especially when the outcome is negative and uncertain, seem to contribute directly to anxiety. However, such situational characteristics are not sufficient; the person must perceive the threat and uncertainty, be bothered by them, and be highly motivated to correct the situation.

Past experiences in which important goals have been blocked, and the state of one's problem-solving and intellectual abilities, are factors that may indirectly influence whether a particular situation will be anxiety-provoking to different individuals (Phillips, Martin, & Meyers, 1972).

The subjective experience of anxiety, in response to the interaction of these situational and personal characteristics, involves "feelings of tension and apprehension and heightened activity of the autonomic nervous system" (Spielberger, 1972, p. 492), as well as competing motives to escape the situation or to fight against it (Epstein, 1972). The ambiguous nature of the situation often produces an emotional reaction that is much greater than is warranted by the objective situation (Spielberger, 1972). Anxiety has been differentiated from fear, which in contrast involves a focused response (Epstein, 1972) in direct proportion to the magnitude of a clearly-defined environmental threat (Spielberger, 1972).

Anxiety and Cognition

Studies inspired by Easterbrook (1959) on the influence of anxiety on cognitive functioning repeatedly have demonstrated an inverted "U" pattern: at very low and very high levels of anxiety, systematic attention to information is hindered, while at a moderate level, attention and responding are facilitated. In other words, an increase in

drive level (e.g., anxiety) seems to result in a reduction in the range of cue utilization (Bacon, 1974). Basic research on this topic, involving verbal learning and signal detection tasks, has shown that up to a certain point, attention to task-irrelevant cues diminishes and thus, performance is facilitated. Beyond that point, that is, after all irrelevant cues have been filtered out and as anxiety continues to increase, "further reduction in the number of cues employed can only affect relevant cues, and proficiency will fall" (Easterbrook, 1959, p. 193).

Research in the area of anxiety and cognitive functioning has shown consistently that high levels of anxiety interfere with performance on complex tasks, but facilitate performance on easy tasks (Spielberger, 1966). Numerous explanations for this relationship have been proposed: anxiety leads to more cautious, rigid, and stereotyped thinking (Phillips, Martin, & Meyers, 1972); increased drive, manifested as anxiety, leads to competing response tendencies and hence to more anxiety (Spielberger, 1966); stressful, evaluative situations increase anxiety, and hence, focus the performer's attention on the self and away from the task (Sarason, 1972); anxiety interferes with short-term or working memory capacity (Bacon, 1974; Darke, 1988). Whatever the mechanism, high levels of anxiety seem to inhibit complex cognitive activities.

Several studies illustrate these effects. One study showed that under stressful conditions, the "harassed" decision-maker seems to attend to fewer relevant dimensions and to give disproportionately more weight to negative evidence (Wright, 1974). Wright speculated that the purpose of this bias might be to protect the decision-maker against negative consequences (i.e., bad decisions); however, this same strategy might also prevent consideration of less obvious alternatives that might be more advantageous in the long run. More recently, Darke (1988) has shown that anxiety impairs complex reasoning, and has suggested that anxiety may place additional strain on working memory.

In sum, as seen in the work of Easterbrook and others, anxiety causes faulty, narrowed perceptions and judgments. As was discussed earlier, Janis and Mann described how anxiety is aroused when an individual is faced with making an important decision. Consistent with Lazarus and Averill (1972) and Epstein (1972), such anxiety arises from conflicts between potential alternative decisions, and from the uncertainty of the ultimate outcome. High levels of anxiety seem to prevent the individual from systematically considering all of the relevant information, resulting in a premature, ineffective decision. In the health domain, the element of uncertainty, and sometimes of uncontrollability, may be critical in analyzing the types of decisions that individuals make. Clearly, pregnancy, as a negative outcome

that many single young women want to avoid, involves uncertainty and thus arouses anxiety. The next section discusses a second factor -- control expectancies -- that may play a crucial role in such decisions.

Perceived Control

The Locus of Control Construct

Drawing upon social learning theory, Rotter (1966) proposed that an individual's behavior (or "behavioral potential") is a function of the subjective probability of reinforcement multiplied by the value of reinforcement. That is, an individual is more likely to perform a particular behavior if one knows that one is likely to receive a highly desired reward. Rotter went further, however, by emphasizing the importance of the source or locus of the expectancy to the individual's behavioral potential. In other words, it seemed to make a difference whether the reinforcements the individual received were controlled by one's own efforts, or by agents other than oneself.

Thus, Rotter emphasized the distinction between internal and external locus of control expectancies. An internal locus of control expectancy refers to the belief that the outcomes or reinforcements one receives are due to one's own deliberate actions, whereas an external locus of control expectancy is the belief that outcomes are due to

luck, fate, chance, or other people. Such expectancies may be specific to one behavioral domain, or may generalize across many domains. A long tradition of research inspired by Rotter and his Internal-External (I-E) Locus of Control Scale has shown that in many cases, an individual leads a more productive and more satisfying life when one holds internal locus of control expectancies.

Individuals with internal control expectancies, compared to those with external expectancies, put forth more effort to control their environments, are less susceptible to social influence, and are more achievement-oriented (Phares, 1979). Such people are more likely to seek and utilize relevant information to solve a problem, and are able to delay gratification longer. This latter finding suggests that an individual with external expectancies may not perceive a fair and reliable world, and thus, may see no reason to defer immediate rewards (Lefcourt, 1976). Greater persistence and achievement of individuals with internal expectancies have been seen in numerous health and achievement settings (Lefcourt, 1976; Strickland, 1978).

Generalized Versus Specific Expectancies

Extensive work with the locus of control construct has shown that in novel or ambiguous situations, generalized control beliefs guide behavior. However, in familiar, clearly-defined situations, expectancies that are specific

to the situation are influential (Strickland, 1978; Wallston et al., 1976; Wallston & Wallston, 1982). Studies employing Rotter's original I-E scale do not usually obtain results as strong as those employing measures of control over the specific situation being studied. In particular, Ajzen and colleagues (e.g., Ajzen & Timko, 1986) have championed the principle of correspondence, which refers to the requirement that attitude or control measures assess those constructs at the same level of specificity as the behavior to be predicted. If a global measure of locus of control is used, such as Rotter's I-E scale, then one must obtain an equally global measure of behavior, by aggregating over numerous related behaviors, in order to assess the predictive relationship.

Researchers have developed measures of control expectancies in a variety of domains, and for the most part, results have been positive. The Health Locus of Control Scale (HLC; Wallston, Wallston, Kaplan, & Maides, 1976), and later, the Multidimensional Health Locus of Control Scale (MHLC; Wallston, Wallston, & DeVellis, 1978), have been quite useful in studying individuals' feelings of control over their general health. While the MHLC has been useful for predicting individuals' overall health behavior patterns, it may be too general for predicting single behaviors.

Other researchers have taken a slightly different approach to the issue of control in the health domain. Following the lead of Bandura (e.g., Bandura, 1977), Rogers and colleagues have proposed Protection Motivation Theory, in which a pivotal concept is self-efficacy expectancy (Rippetoe & Rogers, 1987). Self-efficacy vis-a-vis a specific health threat reflects the extent to which individuals believe that they have the ability to perform a particular behavior successfully to avoid the threat. More recently, perceived control and self-efficacy have been distinguished, such that "perceived control refers to one's perception of the availability of a response, whereas self-efficacy refers to one's confidence in the ability to effect that response" (Litt, 1988, p. 149). Perceived control and self-efficacy are difficult to separate, however, and such separation probably does not offer any conceptual advantages. Nonetheless, the relationship of these beliefs to health-related behavior is a popular and promising topic in current research.

Importance of "Perceptions" in Perceived Control

Control expectancies are entirely a product of the individual perceiver. That is, each individual's subjective probability of an outcome helps to determine performance of some behavior. Such subjective estimates may or may not be veridical reflections of "objective" probabilities. In

fact, more often than not, control expectancies are products of one's attributions; personal control, or lack thereof, is inferred (DeCharms, 1979), and as such, may be inaccurate.

Lefcourt (1976) has discussed the "illusion of control" that drives individuals' actions throughout life. People believe that they control their own behavior and hence the reinforcements they receive. In contrast, some investigators have argued that people's behaviors actually are controlled by environmental conditions and reinforcement possibilities. What is relevant here is not necessarily the debate between free will and environmental determinism, but rather the apparently pervasive perception that predictability -- believing with certainty that one event will follow another -- leads to controllability (Abramson & Alloy, 1980).

Studies have shown that people may also assume the converse, that is, that controllability implies predictability. For example, it may be true objectively that if one has control, good outcomes will occur more frequently than bad ones; individuals erroneously reason that the converse must necessarily be true, that if good outcomes occur more frequently, then one must have control (Abramson & Alloy, 1980).

In sum, expectancies of control may be viewed as arising from learned environmental contingencies. Through experience, individuals assess their own instrumentality

(i.e., competence) in effecting outcomes as well as the presence of other forces that may influence (i.e., predict) events. Occasionally, notions of controllability and predictability become blurred, such that control beliefs under- or overestimate actual control. Individuals attend to and utilize subsequent information about the world in accordance with their somewhat less than veridical control beliefs.

Implicit in the present discussion is the assumption that possessing control is always the preferable state of affairs. The ideal situation, of course, is when the potential for control matches one's desire for control. As Folkman (1984) pointed out, "control can be a mixed blessing when exercising it exacts costs in other areas" (p. 845). If taking control of a situations costs a great deal of money, or if it carries social sanctions, then rather than alleviating stress, control creates more stress. Further, if exercising control goes against one's "preferred style" -- for example, if one has generalized external locus of control beliefs -- then opportunities for personal control will most likely be counterproductive. For example, patients who hold external control beliefs do much better when involved in structured, directive treatments, while patients with internal control beliefs do better with flexible, individualized treatments (Strickland, 1978).

In many cases, belief in personal control is preferable for effective living. However, there may be times in an individual's life when events at home, at work, or in one's body are truly uncontrollable. Under such circumstances, maintaining belief in control despite chronic uncontrollability may be maladaptive, or even quite dangerous (Strickland, 1978, 1979). (The value of illusory beliefs in control has been debated, but is beyond the scope of this paper; see Taylor & Brown, 1988, for a complete review of the issues).

Summary

Perceived control originates from an individual's fundamental beliefs in the contiguity of events and in one's own abilities to influence the course of those events. These beliefs manifest themselves in generalized behavioral dispositions and specific situational expectancies, directing an individual's feelings about herself as well as her plans regarding the future. The mismatch between objective contingencies and subjective probabilities lead to illusions -- of controllability and of uncontrollability -- that have important implications in many behavioral domains. As will be seen in the present study, judgments and perceptions of control in the health domain may be related to distortions in the health decision-making process.

Modifications to the Decision-Making Model

The theoretical goal of the present study was to extend Janis and Mann's (1977) conflict model by exploring the ways in which control beliefs might interact with anxiety to produce the decision-making patterns that the authors outlined. In so doing, several aspects of the model can be clarified by drawing upon the literature reviewed above.

Anxiety and Decision-Making

Impending danger and ambiguous outcomes are two important antecedents to anxiety. In addition, the individual may be faced with a choice of several alternatives, each with its own probability of reducing or eliminating the danger. Anxiety, defined as a feeling of threat and arousal, is a likely result when one is forced to choose a course of action and when reduction of threat is uncertain. Work inspired by Easterbrook (1959) showed that under circumstances of extreme arousal, the cognitive abilities required to avoid the threat may be impaired. A narrowed focus of attention that may be a positive result of moderate anxiety becomes too narrow under higher levels of anxiety, and thus, poor choices may be made.

When an individual is faced with danger, he or she must systematically consider all of the alternatives available, and seek information that will facilitate an intelligent choice. Janis and Mann (1977) extended the basic research

on anxiety and cognition in their conflict model of decision-making. As was described earlier, the authors constructed a model of decision-making that emphasized the role of conflict and anxiety on an individual's ability to make decisions. When an individual is faced with changing one's behavior to avoid negative consequences and bring about positive ones, anxiety may stand in the way of surveying all of the available alternatives. Janis and Mann outlined the affects of anxiety at different points in the decision-making process.

Keinan (1987) suggested three ways that decision-makers' consideration of alternatives may be ineffective: premature closure, or making a decision before all alternatives have been considered; nonsystematic scanning, or searching alternatives in a disorganized fashion; and temporal narrowing, or devotion of insufficient time to each alternative. Janis and Mann's decision-making patterns can be distinguished more clearly using measures like Keinan's. The present research operationalized concepts such as vigilance and hypervigilance using the indicators that Keinan suggested.

The present study also attempted to integrate research on anxiety with the research on positive affect and risk-taking. Specifically, Isen and colleagues have found that positive mood results in increased risk-taking under low-risk conditions and decreased risk-taking under high risk

(Isen, Means, Patrick, & Norwicki, 1982; Isen & Patrick, 1983). Isen's results regarding negative affect have been unclear and mixed. Other researchers (e.g., Pietromonaco & Rook, 1987) have suggested that negative affect, depression in particular, strongly influences risk perception. Further, Pietromonaco and Rook pointed out that Isen's work has not specified how affect might influence assessment of the specific benefits and risks of decisions.

The present study extended the work of Janis and Mann, and Isen and her colleagues, by examining how anxiety influences attention to benefits and risks throughout the decision-making process. Janis and Mann noted that "quantitative methods for assessing and combining the positive and negative incentive values that enter into decisional conflicts are as yet not very well developed" (1977, p. 145), but that the decisional balance sheet methodology may be useful. This methodology is a formal manifestation of the informal process that decision-makers may go through, in terms of outlining the advantages (benefits) and disadvantages (risks) of adopting various behaviors. Thus, understanding how these benefits and risks enter into a decision was a goal of the present study.

An initial hypothesis regarding anxiety and decision-making was that an inverted "U" pattern may emerge; that is, attention to both benefits and risks is low under low anxiety, high under moderate anxiety, and low once again

under high anxiety. However, these results seem to describe only three of the five decision-making patterns that Janis and Mann outlined: unconflicted adherence, in which an individual does not feel that the threat is large enough to warrant a change in behavior (low anxiety, low attention); vigilance, in which an individual perceives a serious threat and systematically considers alternatives to her present behavior (moderate anxiety, high attention); and hypervigilance, in which an individual is extremely concerned, almost panicked, about a threat and cannot concentrate to perform a systematic search for solutions (high anxiety, low or unsystematic attention).

The other two patterns, unconflicted change and defensive avoidance, do not fit into this framework quite as neatly. Recall that the individual exhibiting unconflicted change unquestioningly adopts a new course of action, suggesting that at the very least, benefits of the new behavior are acknowledged (i.e., low anxiety, low to moderate attention to benefits of new behavior). Furthermore, the defensive avoidant seems to distort the available information, by emphasizing the benefits and minimizing the risks of the behavior being adopted (and vice versa for old behavior). The reason why these last two decision-making patterns do not conform to the traditional inverted "U" form may be due to individuals' beliefs

regarding the controllability of the threat and of the behavioral alternatives.

Perceived Control and Decision-Making

Perceived control was defined as an individual's belief in one's ability to produce desired outcomes. Research spanning several decades has demonstrated the importance of perceived control in goal-directed behavior in a variety of domains. In general, an individual will perform a behavior (or plan to perform it) if one believes that one has the ability to do so, and if one believes the outcomes may be influenced by one's actions. If outcomes and behavior are perceived as noncontingent, and if the behavior is difficult to perform, then the individual will most likely decide not to perform the behavior.

Given these reliable results, Janis and Mann's decision-making patterns may be understood in terms of control beliefs. As Janis and Mann pointed out, "little is known as yet about the differences in the anticipations of those whose anxiety leads to constructive action and those whose anxiety leads to immobilization, but it seems plausible that fear of unknown consequences . . . " (1977, p. 230) may be a factor. It seems reasonable to suppose that control expectancies may be the "anticipations" to which Janis and Mann referred.

For example, in Janis and Mann's framework, one of the questions that a decision-maker must answer is whether there exists the possibility of finding a more satisfactory alternative to her present behavior. Individuals exhibiting the unconflicted change, vigilant, and hypervigilant patterns seem to answer this question in the affirmative. This answer might be reinterpreted as a belief in control; that is, these individuals seem to recognize a problem with their present behavior, and they believe they have the abilities to seek and perhaps implement a better course of action. The defensive avoidant and unconflicted adherence patterns, however, are characterized by a negative answer to this question. It may be that these individuals feel constrained in some way; either an alternative behavior is too difficult, or the threat is not entirely under one's control.

Viewing decision-making behavior in terms of control beliefs in this way may afford insights into the process that were not made explicit by Janis and Mann. In short, control beliefs may be important moderators of anxiety in the decision-making process, differentiating individuals whose anxiety is facilitating from those whose anxiety is debilitating.

Interaction of Anxiety and Control

A careful reading of Janis and Mann's model, along with the concerns just described, allow more specific predictions to be made. The five decision-making patterns can be viewed as arising from the interaction of situation-specific anxiety (i.e., anxiety aroused by being faced with a specific decision, rather than a generalized anxiety) and control/self-efficacy beliefs (again, specific to the situation). For instance, as was discussed above, the vigilant, adaptive decision-maker is sufficiently aroused (anxious) over the need to evaluate and possibly change a present behavior, and believes that one has the requisite personal resources (i.e., believes in internal control and high self-efficacy), thus prompting a systematic consideration of relevant information. The defensive avoidant pattern similarly is characterized by moderate to high anxiety over the impending decision, but in contrast, feels little control over finding an alternative to one's present behavior; as a result, one pays more attention to supporting information (i.e., benefits of the present behavior and risks of alternatives), but attends little to, or distorts, nonsupporting information (i.e., risks of the present behavior and benefits of alternatives). Hypervigilance, unconflicted adherence, and unconflicted change may be understood in this framework, as well.

Table 1 outlines how each of Janis and Mann's five patterns were hypothesized to manifest themselves as the interaction between anxiety and control beliefs.

Table 1

Decision-Making Patterns as a Function of Anxiety and Control Beliefs

	Control Expectancies	
Anxiety	high	low
high	hypervigilance	defensive avoidance
moderate	vigilance	defensive avoidance
low	unconflicted change	unconflicted adherence

CHAPTER 2

INTRODUCTION TO THE PRESENT STUDY

Application of Janis and Mann's Model to Health

Janis and Mann's conflict model is useful for understanding decisions regarding preventive health behavior, because the model explicitly acknowledges ways in which anxiety may interfere with rational decision-making.

Since the ultimate outcome of a preventive health behavior may be prevention of a potentially aversive condition, a preferred way to persuade an individual to take a preventive measure may seem to be through fear appeals. It has been shown repeatedly (e.g., Beck & Lund, 1981; Stanley & Maddux, 1986) that control beliefs are crucial in determining whether a health communication will be persuasive. That is, appeals to individuals' fears and anxieties do not mobilize preventive behaviors unless individuals believe they have control over the behaviors and over the outcomes.

Persuasive health communications, especially ones employing fear appeals, may encourage maladaptive coping strategies such as avoidance, wishful thinking, or feelings of hopelessness, rather than the preferred strategies of rational problem solving and intentions to perform the recommended preventive health behavior (Rippetoe & Rogers,

1987). Fear by itself is ineffective, or at least unreliable, in influencing adaptive, preventive behavior (Evans, 1982; Rogers, 1975).

Given these and similar findings, it is not surprising that motivating individuals to engage in preventive behaviors can be difficult. Anxiety-provoking campaigns may attract attention to a health risk initially, but without instilling feelings of control over the threat, adaptive action is unlikely. Janis and Mann's model offers a clear framework for understanding how adaptive and maladaptive decisions result from varying levels of anxiety and uncertainty. The present study focuses on two health issues, contraceptive use and date rape.

Contraceptive Use and Pregnancy Prevention

As was discussed in Chapter 1, individuals are sometimes quite poor at estimating their susceptibility to risks and their control over such risks. Furthermore, adolescents whose reasoning abilities are immature, may underestimate their vulnerability to health risks in general, and to accidental pregnancy specifically. Inaccurate expectancies, coupled with an often risky lifestyle and a strong need to be accepted by one's peers, too often lead to unprotected, premature sexual activities.

Paradoxically, adolescents simultaneously perceive too much control and too little control over pregnancy

prevention: feelings of invulnerability, perhaps coupled with inaccurate information about sexuality and reproduction, may lead to an overestimation of one's control over accidental pregnancy (Burger & Burns, 1988); at the same time, perceived pressures to demonstrate one's affection, and to be "spontaneous" in one's sexual activities, may lead one to engage in sex before one is ready and hence, prevent one from using effective birth control (Andres, Gold, Berger, Kinch, & Gillett, 1983; Needle, 1977; Newcomb, Huba, & Bentler, 1986). In addition to these expectations and pressures (or perhaps as a result of them), considerable anxiety is aroused in response to the personal and interpersonal decisions with which the adolescent is faced (Andres et al., 1983; Burger & Inderbitzen, 1985; Finkel & Finkel, 1983).

Although simple lack of information about fertility may influence very young teens' contraceptive risk-taking, numerous investigators have suggested that teens' reasoning ability may be to blame as well (Gerrard, McCann, & Fortini, 1983; Harari, Harari, & Hosey, 1979). The inability to think in probabilistic terms can lead to misunderstanding of even the most clearly-presented factual information. Common misunderstandings include (1) the belief of girls just entering puberty that they cannot become pregnant, (2) the belief that pregnancy cannot occur with infrequent intercourse, (3) the belief that one must be sterile if one

has not become pregnant after a few acts of intercourse, and (4) the faith in one's ability, despite very irregular menstrual periods, to estimate when the "safe" times of the month are (Cvetkovich, Grote, Bjorseth, & Sarkissian, 1977; DeLameter & MacCorquodale, 1979; Hayes, 1987). Such beliefs may persist despite exposure to factually-oriented sex education courses in school.

Cognitive immaturity, including difficulties with abstract thinking, inability to consider hypothetical possibilities, and inability to consider several aspects of an event at once (Cobliner, 1973; Germain, 1985; Weisz & Stipek, 1982), has been proposed as a major determinant of adolescents' contraceptive risk-taking. Since sexuality and birth control are topics that many parents hesitate to discuss, and since sex education may be taught in schools as an "academic" subject (i.e., addressing facts but failing to work through teens' feelings and beliefs), it is possible that a teen would be unable to use his or her cognitive reasoning to deal with such topics (Cvetkovich, Grote, Bjorseth, & Sarkissian, 1977).

Research on the influence of control beliefs on teenage contraceptive use reaches conclusions similar to those in the general PHB literature: holding internal control beliefs generally makes it more likely that an individual will seek effective birth control methods (MacDonald, 1970). Although some investigators (e.g., Ajzen, as discussed

earlier) prefer situation-specific measures for predicting specific behaviors such as contraceptive use, evidence suggests that general beliefs regarding controllability and vulnerability may manifest themselves in ineffective fertility control. That is, unsuccessful contraception might be symptomatic of a more general helplessness in personal, professional, and political realms (Brunswick, 1971; Groat & Neal, 1967; Liberman, 1981).

Once teens become pregnant, how do control beliefs affect their decision-making? In one study, one-hundred eighteen teenagers completed Rotter's I-E scale in the context of the regular interviews done upon first visit to an abortion clinic. Compared to internals, subjects classified as externals reported a longer delay in seeking abortion (measured as time between positive pregnancy test and abortion procedure). Delaying the decision to abort may be symptomatic of a general difficulty with important decisions and a reliance on others for such decisions (Dixon, Strano, & Willingham, 1984). The possible mechanisms behind such delay are not difficult to generate: perhaps, as Janis and Mann's model might suggest, the anxiety associated with an unintended pregnancy may "paralyze" the individual's decision-making abilities, particularly if the individual sees no way out of the situation; or, as Folkman (1984) suggested, taking control

by making a decision to abort may be more stressful than doing nothing.

In sum, the evidence strongly suggests that both control beliefs and anxiety will predict individuals' decisions regarding contraception.

Date Rape

Not unlike other issues related to sexuality, date rape is a very difficult subject to study. Individuals will discuss sexual activity and contraceptive use, but many people refuse to talk about date rape either because they believe that it is not possible, or because they are not sure whether or not it has happened to them (Katz & Mazur, 1979). Not surprisingly, it would be difficult for an individual to prevent an event whose occurrence cannot be defined or recognized.

As in the case of pregnancy prevention, date rape prevention is problematic because of too much perceived control over some aspects and too little control over other aspects of the situation. The dating situation may be perceived as fairly safe, and thus, controllable. Unfortunately, once alone with her date, a woman may be surprised and confused when the person about whom she cares a great deal forces her to engage in intercourse against her wishes (Katz & Mazur, 1979). Furthermore, the normative

dynamics of stereotypic sex roles are such that control and choice may not be possible at all (Ageton, 1983).

Control and anxiety are influential in these decisions as they are in contraceptive decisions. However, date rape is a topic about which systematic study is lacking. Decision-making in this situation may be similar to that in other health domains. Certainly, the woman in the dating situation has a variety of options open to her in terms of sexual behavior, but feelings of control and anxiety arising from personal, interpersonal, and societal norms may prevent her from making a satisfactory decision. Once again, the theoretical framework discussed in Chapter 1 would be a valuable tool for understanding this decision-making process.

Hypotheses

Decision-making quality was expected to be influenced by an interaction of domain-specific anxiety and control. For high control subjects, the effect of anxiety was expected to form an inverted "U" pattern, such that among high control subjects, those reporting low anxiety or high anxiety would show lower decision-making quality relative to moderate anxiety subjects. Low control subjects, in contrast, were expected to show equally poor decision-making quality regardless of level of anxiety, and such decision-making would be of a lower quality than any of the high

control subjects. Hypotheses were proposed regarding four indicators of decision-making quality.

Hypothesis 1: Reading and Decision Time

Time spent reading health-related information, and time spent making a decision about a health-related behavior, constituted one set of decision-making indicators. Individuals spending a shorter amount of time reading the information, relative to that spent by other individuals, would be paying inadequate attention to that information, and hence, would be displaying Keinan's (1987) temporal narrowing. In contrast, individuals spending more time on the information would be displaying higher quality decision-making. Similarly, higher quality decision-making would be indicated by a longer time spent making a decision. Figure 1, page 40, outlines the effects of anxiety and control on reading and decision time.

Hypothesis 2: Information Quantity

Another indicator of decision-making quality was quantity of information read. Fewer pieces of information read prior to making a decision, relative to that viewed by other individuals, would indicate that individuals were making decisions without considering all of the relevant information, and hence, would be displaying Keinan's premature closure. If more information was viewed, higher

quality decision-making was taking place. Figure 2, page 40, outlines the effects of anxiety and control on information quantity.

Hypothesis 3: Discrepancies From An Orderly Search of Information

The third indicator of decision-making quality was number of discrepancies from an orderly search of information. When given numerous pieces of information grouped according to common themes (e.g., benefits versus risks, prevention versus nonprevention information), more discrepancies from an orderly search of information would indicate that an individual's search was oscillating from one type of information to another (i.e., was disorganized). This pattern corresponds to Keinan's nonsystematic scanning. Reading all of the information in one group before going on to another group would indicate higher quality decision-making. (Details on the calculation of this measure will be described at the end of Chapter 3.) Figure 3, page 41, outlines the effects of anxiety and control on discrepancies from an orderly search of information.

Hypothesis 4: Information "Preferences"

The fourth indicator of decision-making quality was "preference" for one type of information over another. Individuals reading equal quantities of all types of

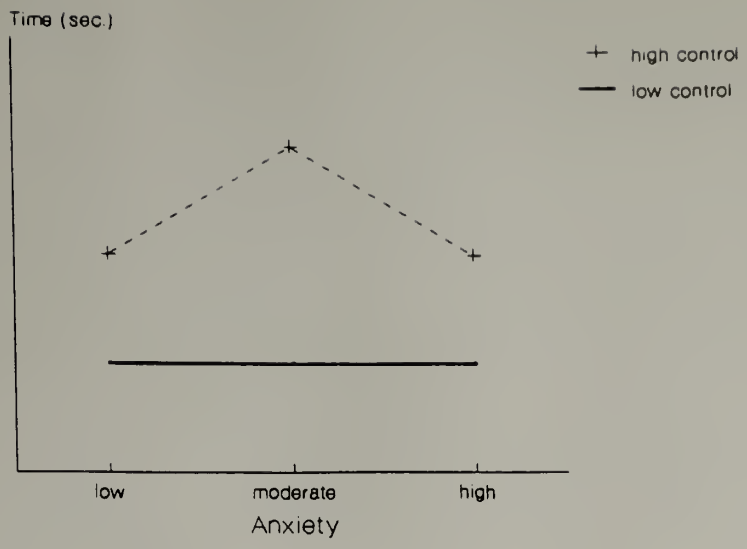

Figure 1. Reading and decision time as a function of anxiety and control.

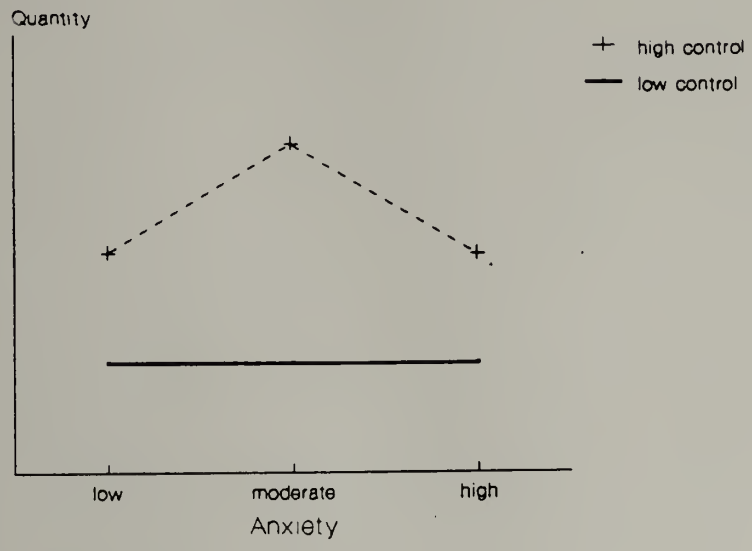

Figure 2. Information quantity as a function of anxiety and control.

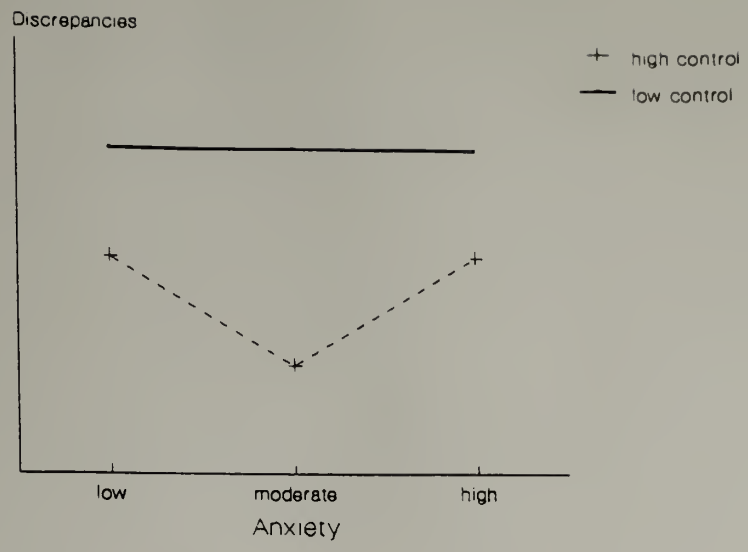

Figure 3. Discrepancies from an orderly search of information as a function of anxiety and control.

all types of information, would be showing higher quality decision-making. In contrast, individuals showing a bias or "preference" for one type of information over another (e.g., benefits over risks, prevention over nonprevention information) would be showing lower quality decision-making; such a bias would be indicated by more time spent reading one type of information over another, or by reading more of one type of information over another. (Details on the calculation of this measure will be described at the end of Chapter 3.) Figure 4 outlines the effects of anxiety and control on information "preferences."

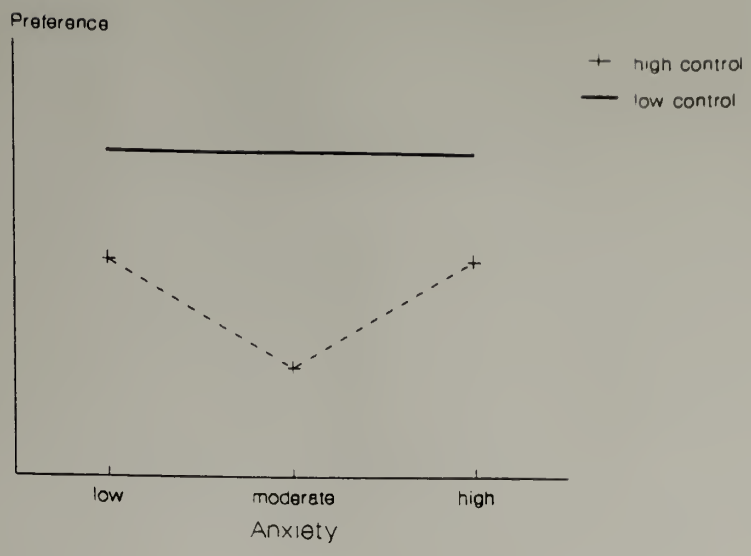

Figure 4. Information "preferences" as a function of anxiety and control.

Design

To test these predictions, two widely-used methodologies were employed in slightly modified forms. The first of these methodologies was Janis and Mann's decisional balance sheet. Rather than having subjects generate the benefits and risks of various behavioral alternatives, lists of these benefits and risks were provided, and subjects' attention to them (via the measures described above) was observed. Second, studies on decision-making in various domains have directed subjects to imagine themselves in relevant scenarios, and asked subjects to decide how they would behave in those scenarios. The proposed study presented two scenarios, one concerning birth control use and pregnancy and another concerning date rape and rape

prevention. Subjects read the scenarios, considered benefits and risks of taking and of not taking preventive actions in those scenarios, and chose the decision that would be best for them.

CHAPTER 3

METHOD

Subjects

Three hundred five females, 19 years old or younger, participated in the study. They were students at the University of Massachusetts at Amherst, who were recruited through announcements in their Psychology classes and through sign-up sheets in the Psychology building. Subjects received extra credit points toward their Psychology course grades for participation.

Materials

Anxiety and Control Questionnaire

A questionnaire was used to assess anxiety and control beliefs. Both general and domain-specific anxiety and control items were included to validate that domain-specific beliefs, rather than general ones, would influence decision-making processes.

Anxiety scales were constructed with respect to five domains: birth control use (5 items), unintended pregnancy (5 items), date rape and rape prevention (10 items), general health (4 items), and general anxiety (4 items). Scales of control beliefs were constructed with respect to these same domains: birth control use (4 items), unintended pregnancy

(6 items), date rape and rape prevention (10 items), general health (4 items), and general control (4 items).

In addition, a scale of 5 items tapping unrealistic control over pregnancy was included largely for exploratory purposes. This scale assessed subjects' misunderstandings about how and when pregnancy is possible. Issues covered in this scale included inability to get pregnant if one has intercourse during one's menstrual period and knowing when one's "safe" times of the month are. Items from all 11 scales were written by the author for purposes of this study, with two exceptions: several general control items were adapted from Rotter's I-E scale (1966), and several health-related control items were used verbatim from the Multidimensional Health Locus of Control Scale (Wallston, Wallston, & DeVellis, 1978).

On the basis of scale responses, subjects were classified as low or high control (via a median split) and as low, moderate, or high anxiety (lowest 25%, middle 50%, and upper 25% of the scores, respectively), with respect to birth control, unintended pregnancy, date rape, health, and life in general.

The last two pages of the questionnaire solicited behavioral information (e.g., frequency of sexual activity, current use of birth control, estimation of general health) and demographic information (e.g., race, religion, parents'

education). (Please refer to Appendix A for the informed consent form and questionnaire.)

Decision Scenarios

Birth control and date rape scenarios are presented in Appendices B and C, respectively. The birth control scenario described a freshman woman, who has dated a particular male student for a short time, had one experience of unprotected sexual intercourse, and is faced with the question of contraceptive use. The date rape scenario described a freshman woman going to a party with a new male friend, going to the male's room, and being faced with the possibility of forced sexual relations. Based on literature on these topics, and on anecdotes from undergraduates, these scenarios represented typical experiences of freshman women with which most, if not all, of the present subjects could relate.

Benefits, Risks, and Possible Decisions

As with the scenarios, benefits and risks of prevention and nonprevention behaviors in the two scenarios were written to reflect adolescents' thoughts on these issues, as revealed by current literature. Five two-sentence vignettes were written for each category of information (i.e., benefits of prevention, risks of prevention, benefits of nonprevention, risks of nonprevention, for a total of 20

vignettes) for each scenario. Then, each vignette for a scenario was represented by one word, and these words were numbered and displayed in a menu.

Finally, lists of possible decisions for each scenario (7 for birth control scenario and 5 for date rape scenario) were written to reflect common actions that young women might take in the situations described. In both cases, an "other" choice was included to cover the possibility that the decision lists were not exhaustive. (Please refer to Appendices B and C for lists of benefits and risks with their summary menus and decision lists for birth control and date rape scenarios, respectively.)

Apparatus

The scenarios with benefits and risks were presented, and subjects' responses were measured, via an original computer program utilizing the "dBase III+" (Ashton-Tate) programming capabilities and running on an IBM PS-2 Model 50 personal computer. Three such computers were used in separate cubicles, allowing three subjects to be run simultaneously.

Procedure

Questionnaires were given to subjects in groups of five to 20 in a classroom in the Psychology building on campus. Upon completing the questionnaire, all subjects were asked

to volunteer to participate in a second, related project one to two weeks later. This second project involved subjects coming in individually to a laboratory in the Psychology building to fill out the questionnaire again and to "use a computer to read some health-related information and make judgments about it."

Upon arrival for the second part of the study, subjects were asked to read and sign a consent form that described what they were being asked to do. Order of questionnaire and computer task was randomized; after signing the consent form, some subjects filled out the questionnaire before performing the computer task, and some subjects filled out the questionnaire after performing the computer task. Subjects were told that the questionnaire "is similar to the one you completed last week, but some of the questions are the same and some are different." The questionnaires actually were identical, except for an additional set of behavioral questions that were included in the second questionnaire administration but not in the first.

Using the computer, subjects performed two decision-making tasks, one on birth control and another one on date rape; order of tasks was randomized across subjects. Each scenario was presented as a series of four computer screens with 3 to 4 sentences per screen, to insure that subjects would be able, and would take the time, to read everything. Subjects were given as long as they needed to imagine

themselves as vividly as possible in a scenario; a new screen of information appeared only when subjects pressed the enter key to continue.

On the last screen of a scenario was a comment that there are numerous benefits and risks of taking and of not taking preventive actions in the scenario described. Subjects then were shown a menu of topic areas, representing benefits and risks, on which they could receive more information. Subjects were given the option of scanning as many or as few as they wished, in any order, and for as much or as little time as they wished. Choosing to read nothing was also an option. Choosing a topic involved typing in a number from 1 to 20. A two-sentence vignette appeared in the center of the screen and remained until the enter key was pressed, thus returning the menu to the screen. Typing 99 at the menu cleared the menu for the final time.

After scanning the first scenario with benefits and risks, subjects were asked to choose one of several decisional outcomes (e.g., have sex but don't use birth control, have sex and use birth control, worry about pregnancy when it happens and then have abortion, etc. in the birth control scenario) that would be most suitable for them. The second scenario, with benefits, risks, and decision task, was then presented using the same procedure.

A feedback sheet (see Appendix D) was given to subjects upon completion of the session. This sheet described the

purposes of the study, and listed some places and phone numbers on campus that women could call if they had any questions about any of the issues raised in the study. In addition to the feedback sheet, subjects received an informative pamphlet published by University Health Services called "Choosing A Contraceptive," which included detailed information about various birth control methods and which, consistent with the theme of the present study, discussed decision-making strategies.

Dependent Measures

For each scenario, the computer automatically recorded the following dependent variables:

(1) time reading scenario (in seconds, out to two decimal places)

(2) first menu choice viewed

(3) time reading first menu choice

(4) final decision chosen

(5) time taken to make final decision

(6) number of prevention benefits read

(7) average time taken to read prevention benefits

(8) number of prevention risks read

(9) average time taken to read prevention risks

(10) number of nonprevention benefits read

(11) average time taken to read nonprevention benefits

(12) number of nonprevention risks read

(13) average time taken to read nonprevention risks

Further, the measurements listed above were used to compute two measures of discrepancies from orderly searches of information, and three measures of preferences for one type of information over another. First, to measure discrepancies from an orderly search of benefits versus risks, menu choices were grouped into four blocks: 1 - 5 (prevention benefits), 6 - 10 (prevention risks), 11 - 15 (nonprevention benefits), and 16 - 20 (nonprevention risks). A discrepancy was tallied each time a subject chose information from a block different than the previous choice. A total discrepancy score of 3 meant that a subject read as much information from a block as she desired, then went on to the second block, to the third, and finally to the fourth. A score greater than 3 indicated that at least one block was revisited after changing blocks; a discrepancy less than 3 indicated that at least one block was not chosen.

To measure discrepancies from an orderly search of prevention versus nonprevention information, menu choices were grouped into two blocks: 1 - 10 (prevention information) and 11 - 20 (nonprevention information). A discrepancy was tallied each time a subject moved from one block to another. A total discrepancy score of 1 meant that a subject read all she desired from one block, then went on

to the next block. A discrepancy greater than 1 indicated that the subject switched blocks more than once; a discrepancy less than 1 indicated that one of the blocks was not chosen.

All preferences were measured in two ways: quantity differences and average time differences. Preference for benefits over risks was measured separately within each prevention and nonprevention block. The measure was calculated as a difference between benefits and risks. A positive difference indicated a preference for benefits, and a negative difference indicated a preference for risks.

A second preference was calculated as a difference between prevention information chosen and nonprevention information chosen. A positive difference indicated a preference for prevention information, and a negative difference indicated a preference for nonprevention information.

Finally, overall preference for benefits over risks was calculated as the difference between all of the benefits chosen and all of the risks chosen. A positive difference indicated a preference for benefits, and a negative difference indicated a preference for risks.

CHAPTER 4

RESULTS

Subject Characteristics

Of the 305 college women who participated, 223 completed both parts of the study and 82 did not. (Only the former group will be used for reliability analyses and hypothesis tests.) Of the former group, most subjects were White (91.5%) and were 18 years old (52.9%). (See Table E-1, Appendix E, for demographic characteristics of both samples.)

The Pill was the primary birth control method of choice in the former sample (33.2% of subjects). In the six months prior to study participation, most subjects had intercourse either three or fewer (41.3%) or 13 or more (38.1%) times. Nearly all subjects (92.8%) said that they had never been raped by a date. (See Table E-2, Appendix E, for descriptions of both samples.)

Influence of Subject Characteristics on Scale Scores

Control over birth control increased steadily with age: $F(4,206) = 2.856$, $p = .025$. In contrast, compared to subjects in their 20's, general control was higher for 17- to 19-year-old subjects: $F(4,206) = 3.999$, $p = .004$. Table 2 displays the means of scale scores that differed by age.

Table 2

Scale Scores as a Function of Age

Scale	Age	Mean
control over birth control	17	20.61
	18	21.53
	19	23.80
	20	25.20
	21	25.00
anxiety over pregnancy	17	30.39
	18	30.49
	19	27.93
	20	33.00
	21	28.25
general control	17	23.06
	18	24.05
	19	23.49
	20	19.50
	21	19.75

Note. N = 211.

Influence of Subject Characteristics on Decision-Making Measures

Race seemed to be a significant factor in subjects' average reading time of prevention benefits, number of

prevention risks read, and number of nonprevention benefits read in the date rape scenario. Black subjects spent the least amount of time reading prevention benefits on the average; White subjects spent slightly more time, and Asians and Hispanics spent the most time: $F(3,219) = 2.852$, $p = .038$. White subjects read the fewest prevention risks, followed by Hispanics, Blacks, and Asians: $F(3,219) = 2.763$, $p = .043$. Finally, in a pattern similar to that of prevention benefit time, Black subjects read the fewest nonprevention benefits, followed by Whites, Hispanics, and Asians: $F(3,219) = 4.279$, $p = .006$. No other significant effects of subject characteristics on birth control or date rape decision-making measures were obtained. Table 3 shows the means of several date rape decision-making measures as a function of race.

On the basis of the results described thus far, only data from 196 White subjects 19 years old or younger were included in hypothesis tests. Older and minority subjects' anxiety and control, as well as their decision-making strategies, were somewhat different from that of younger, White subjects. Furthermore, English might not have been the primary language of some of the Asian and Hispanic subjects, thus confounding their decision-making results. Since the sample did not include adequate numbers of older and minority subjects (3.5% were older than 19, and 8.5% were either Black, Asian, or Hispanic; see Appendix E),

drawing any firm conclusions about their decision-making would be difficult, and hence, analyses presented here exclude these individuals.

Table 3

Date Rape Decision-Making Measures as a Function of Race

Date Rape Measure	Race	Mean
avg. time reading prevention benefit (sec.)	White	7.10
	Black	6.19
	Asian	10.09
	Hispanic	14.22
number of prevention risks read	White	1.24
	Black	1.50
	Asian	2.88
	Hispanic	1.40
number of nonprevention benefits read	White	1.50
	Black	1.17
	Asian	3.63
	Hispanic	1.80

Scale Characteristics

Cronbach's alpha was calculated for each of 11 scales, and one "inconsistent" item was dropped from each scale to maximize reliability. As can be seen in Table 4, page 59,

alpha coefficients ranged from .3475 for the general control scale to .8123 for the anxiety over date rape scale, with seven of the 11 scales demonstrating alphas greater than .60.

Correlations between subjects' responses on the two scale administrations yielded test-retest reliability coefficients. These ranged from .4127 for the control over date rape scale to .8316 for the anxiety over birth control use scale, with 10 of the 11 scales demonstrating correlations over .65 (see Table 4).

Taken together, alpha and test-retest reliabilities showed more favorable results for the anxiety scales than for the control scales.

Table 5, page 60, displays the means, standard deviations, possible ranges, and actual ranges of the 11 scales. All of the scales, with the exception of the control over date rape and control over unwanted pregnancy scales, yielded actual ranges of scores that were almost identical to the possible ranges.

One scale, the unrealistic control over pregnancy scale, was included for exploratory purposes rather than for use as an independent variable. This scale included items that assessed the extent of subjects' misunderstandings about becoming pregnant, such as whether one can become pregnant if one has intercourse during one's menstrual period. Although some of these misunderstandings continue

to exist in women of this age group, the mean of this scale was 6.70, very close to the lowest possible score of 4. For the most part, then, these women have few misunderstandings about when they are at risk for pregnancy.

Birth Control Scenario Decision-Making Measures

Decisions Chosen

Table 6, page 61, shows that over 88% of subjects chose what might be considered the socially desirable response: if faced with the situation described in the scenario, the best decision for the subject would be to have sex and use birth control. The next most frequently chosen decision (6.3%) was to abstain from sex altogether. Inspection of subjects' responses to demographic and behavioral questions (described earlier; see Table E-1 and Table E-2, Appendix E), however, suggested that subjects may not do what they hypothetically think would be best; for example, 5.4% of subjects reported having sex without using birth control, while none of the subjects chose as their "best" decision to have sex and not worry about birth control. Further, 27.4% of subjects reported that they have never had sex, while only 6.3% of subjects chose not having sex at all as their "best" decision. Due to the biased nature of the decision frequencies, they were not used for any further analyses. These results indicated, however, that women of this age

Table 4

Scale Compositions and Reliabilities

Scale	Number of Items	Items Included	Alpha Reliability	Test-Retest Reliability
anxiety				
rape	9	2, 8, 9, 11, 14, 16, 17, 21, 24	.8123	.8088
birth control	4	3, 15, 26, 51	.7409	.8316
pregnancy	4	5, 12, 22, 57	.6138	.6817
general health	3	18, 18, 27	.7305	.7141
general	3	13, 23, 31	.6307	.8211
control				
rape	9	28, 35, 39, 41, 48, 49, 52, 54, 61	.4894	.4127
birth control	3	34, 44, 59	.7753	.8544
pregnancy	5	10, 20, 36, 37, 40	.4573	.6748
pregnancy, unrealistic control	4	42, 43, 45, 60	.4459	.6607
general health	3	4, 47, 56	.6436	.7625
general	3	6, 33, 50	.3475	.6849

Note. N = 223.

Table 5

Means, Standard Deviations, Possible Ranges, and Actual Ranges of Scale Scores

Scale	Mean	Standard Deviation	Possible Range	Actual Range
anxiety				
rape	39.44	13.06	9 - 81	11 - 79
birth control	18.38	7.70	4 - 36	4 - 36
pregnancy	29.56	5.95	4 - 36	4 - 36
general health	17.89	5.34	3 - 27	4 - 27
general	15.16	5.38	3 - 27	3 - 27
control				
rape	56.01	9.38	9 - 81	25 - 77
birth control	22.35	5.35	3 - 27	4 - 27
pregnancy	39.48	4.91	5 - 45	21 - 45
pregnancy, unrealistic control	6.70	4.42	4 - 36	4 - 31
general health	21.22	3.80	3 - 27	9 - 27
general	23.69	2.80	3 - 27	10 - 27

Note. N = 223.

Table 6

Birth Control Scenario Decisions: Percent of Sample Choosing Each

Decision	Percent of Sample
do not have sex	6.3
have sex and do not worry about birth control or pregnancy	0
have sex and use birth control	88.3
have sex, and if a pregnancy occurs, have an abortion	0.9
have sex, and if a pregnancy occurs, have the baby and keep it yourself	0
have sex, and if a pregnancy occurs, have the baby and give it up for adoption	0
other (something else not listed here)	4.5

N = 223.

essentially agree that using birth control is the appropriate action if one engages in intercourse.

Influence of Domain-Specific Anxiety and Control

Analyses of variance were performed to test the hypothesis that an interaction between domain-specific anxiety and control would influence decision-making measures. For decision-making in the birth control scenario, beliefs regarding both birth control use and

unintended pregnancy prevention were expected to be relevant. Results showed that anxiety and control over birth control use influenced decision-making, but anxiety and control over pregnancy prevention did not.

Reading and Decision Time

Contrary to the hypotheses, subjects classified as having low control over birth control took longer than high control subjects to make their decisions (30.69 versus 24.24 seconds, respectively; $F(1,190) = 12.898$, $p = .0001$).

Again, contrary to the hypotheses, low control subjects read each prevention benefit (menu choices 1 to 5) for a longer time on the average compared to high control subjects (1.41 versus .83 seconds, respectively; $F(1,190) = 4.584$, $p = .034$). No main effects of anxiety or anxiety/control interactions were revealed. Furthermore, no effects of domain-specific anxiety and control were seen for nonprevention benefit, prevention risk, or nonprevention risk reading time measures.

Information Quantity

Average number of nonprevention benefits read showed a significant interaction of anxiety and control over birth control: $F(2,190) = 3.095$, $p = .048$. Under low control, low anxiety subjects read the least, followed by moderate and high anxiety subjects. Under high control, the opposite

control: $F(2,190) = 3.095$, $p = .048$. Under low control, low anxiety subjects read the least, followed by moderate and high anxiety subjects. Under high control, the opposite pattern occurred: high anxiety subjects read the least, followed by moderate and low anxiety subjects. Pairwise constrasts (planned t-tests) revealed a significant difference between low and high anxiety subjects in the high control group ($t(100) = -2.266$, $p = .026$, two tailed). Results for moderate and high anxiety subjects in the high control group, and for low anxiety subjects in the low control group, are consistent with the hypotheses. Refer to Figure 5 for these results.

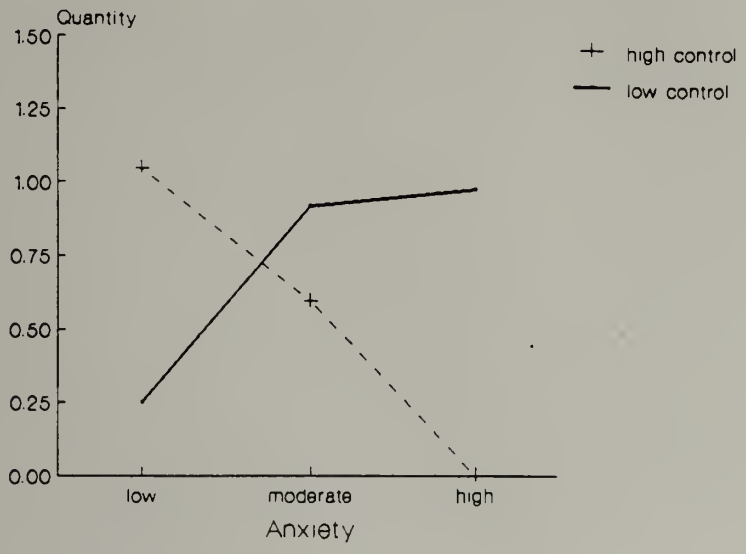

Figure 5. Average number of birth control nonprevention benefits read as a function of anxiety and control over birth control.

The discrepancy measures and information "preference" measures were not influenced by anxiety and control over birth control.

Influence of Anxiety and Control Over Health: Information "Preferences"

Contrary to the hypotheses, which proposed effects of domain-specific measures, anxiety and control over health influenced two of the decision-making "preference" measures: difference between number of prevention benefits minus prevention risks read, and difference between time spent reading nonprevention benefits minus nonprevention risks. None of the other decision-making measures varied by anxiety and control over health.

Difference between number of prevention benefits minus prevention risks read was influenced by control over health: $F(1,190) = 4.40$, $p = .037$. Overall, all subjects read more risks, but the preference was stronger for the low control subjects than for the high control subjects (-.69 versus -.28, respectively). Although control over health was not expected to influence birth control decision-making, the finding that low health control subjects read more prevention risks is consistent with past research on health locus of control and preventive health behavior.

Difference between time spent reading nonprevention benefits minus nonprevention risks was influenced by an

interaction of anxiety and control over health: $F(2,190) = 3.432$, $p = .034$. Under low control, moderate anxiety subjects spent more time reading risks (shown by a negative time difference), while low anxiety subjects, and high anxiety subjects to a greater degree, spent more time reading benefits (a positive time difference). Under high control, low and high anxiety subjects spent more time reading risks, but moderate anxiety subjects spent more time reading benefits. Pairwise contrasts (planned t-tests) revealed significant differences between moderate anxiety and high anxiety subjects in the high control group ($t(102) = -2.006$, $p = .048$, two tailed), as well as between low control and high control subjects in the high anxiety group ($t(50) = -1.992$, $p = .05$, two tailed). Once again, although health anxiety and control were not expected to influence birth control decision-making, Figure 6, page 66, shows the hypothesized inverted "U" pattern for high control subjects.

Differences in quantity or time for prevention over nonprevention information was not influenced by anxiety and control over health.

Influence of Generalized Anxiety and Control

Contrary to the hypotheses, generalized anxiety and control influenced several of the decision-making measures, with the exception of the quantity and discrepancy measures.

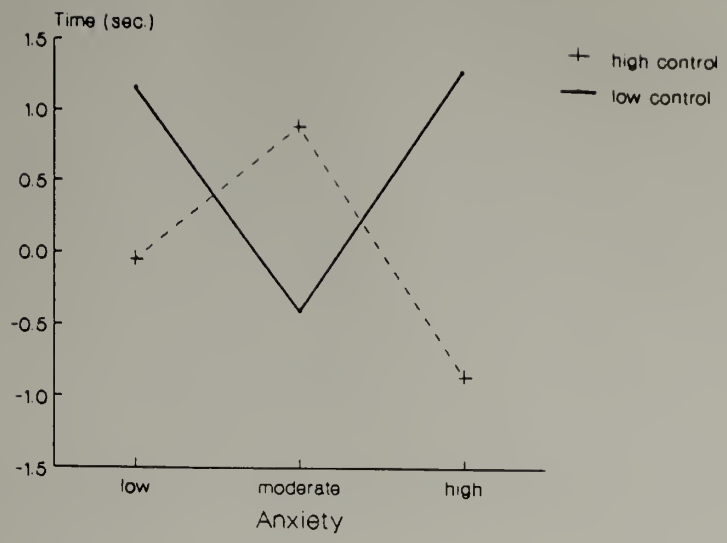

Figure 6. Difference between time spent reading birth control nonprevention benefits minus nonprevention risks as a function of anxiety and control over health.

Reading and Decision Time

High general control subjects took longer than low general control subjects to make their final decisions (28.50 versus 25.10 seconds, respectively; $F(1,190) = 4.255$, $p = .04$). Although general control was not expected to influence birth control decision-making, the finding that high control subjects took longer to make their decisions is consistent with past research on locus of control and behavior. No significant main effects of anxiety or interactions of anxiety and control were found.

Average time reading a nonprevention benefit (menu choices 11 to 15) showed a significant main effect of general control, with no anxiety main effect or interaction.

Low control subjects read nonprevention benefits longer than high control subjects (4.53 versus 3.10 seconds, respectively; $F(1,190) = 4.532$, $p = .035$). Once again, although not directly hypothesized, the finding that low control subjects were more attentive to benefits of nonprevention is consistent with past locus of control research.

Time reading prevention benefits, prevention risks, and nonprevention risks were not influenced by general anxiety and control.

Information "Preferences"

Differences in time reading nonprevention benefits minus nonprevention risks showed a main effect of general control ($F(1,190) = 8.637$, $p = .004$). Low control subjects spent more time reading benefits, while high control subjects spent more time reading risks (1.34 versus -.41 seconds, respectively).

Differences in time reading nonprevention benefits minus nonprevention risks also showed an interaction of general anxiety and control ($F(2,190) = 3.60$, $p = .029$). Pairwise contrasts (planned t-tests) revealed significant differences between low anxiety and moderate anxiety subjects in the high control group ($t(124) = 2.059$, $p = .042$, two tailed), as well as between low control and high control subjects in the low anxiety group ($t(37) = -3.291$, p

= .002, two tailed). As shown in Figure 7, results for high control subjects formed the classic inverted "U" pattern, and trends for both high and low control subjects are consistent with past locus of control research.

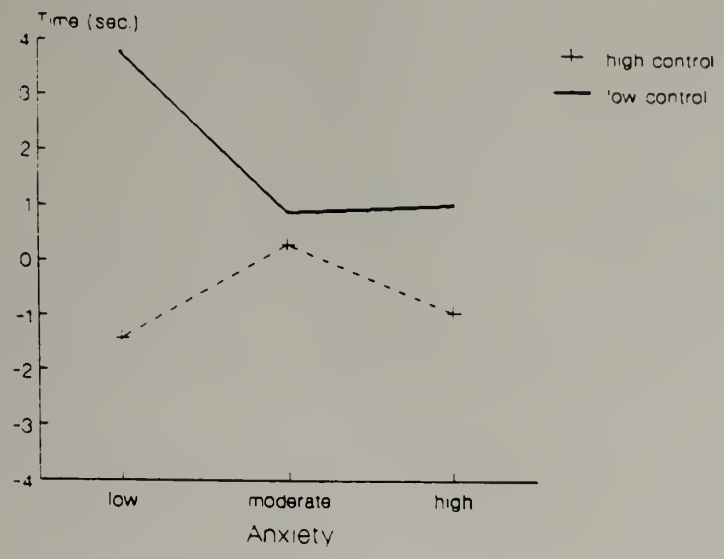

Figure 7. Difference between time spent reading birth control nonprevention benefits minus nonprevention risks as a function of general anxiety and control.

None of the other quantity or time differences -- prevention benefits minus prevention risks, or prevention minus nonprevention information -- were influenced by general anxiety and control.

Summary of Birth Control Results

Compared to subjects reporting high control over birth control, low control subjects took more time to make their decisions, spent more time reading prevention benefits, and

read more nonprevention benefits (note that this last result occurred for subjects reporting moderate to high anxiety in addition to low control). Compared to subjects reporting high control over health, low controls read more prevention risks and nonprevention benefits. Finally, compared to subjects reporting high general control, low controls took less time to make their decisions, and spent more time reading nonprevention benefits.

In sum, the interaction of anxiety and control over birth control had an effect on only one of the decision-making measures. Furthermore, not only was control over birth control influential, but control over health and generalized control were as well. Similarities and differences in decision-making as a function of these three sets of beliefs will be discussed in the next chapter.

Date Rape Scenario Decision-Making Measures

Decisions Chosen

Table 7 shows the frequencies with which subjects chose each decision as best for them in the scenario described. Although subjects varied in their decision chosen, 43% of the 223 subjects thought that they would "tell him that you feel uncomfortable, and would rather go somewhere else to talk." The least popular solution was to "stay in his room, and tell him how far you want to go sexually" (7.2% of subjects). Each of the other three decisions were endorsed

by between 15% and 20% of subjects. These results suggest some degree of social desirability, and hence, were not used in further analyses.

Table 7

Date Rape Scenario Decisions: Percent of Sample Choosing Each

Decision	Percent of Sample
stay in his room, and wait to see what happens	19.3
stay in his room, and tell him how far you want to go sexually	7.2
tell him that you feel uncomfortable, and would rather stay downstairs	15.2
tell him that you feel uncomfortable, and would rather go somewhere else to talk	43.0
other (something else not listed here)	15.2

Note. N = 223.

Influence of Domain-Specific Anxiety and Control

Once again, analyses of variance were performed to test the hypothesis that an interaction between domain-specific anxiety and control would influence decision-making measures. For the date rape scenario, decision-making was expected to be influenced by anxiety and control over date rape. Results showed that none of the time or discrepancy

measures were influenced by anxiety and control over date rape.

Information Quantity

Control over date rape had a significant effect on the number of nonprevention benefits subjects read ($F(1,190) = 4.154$, $p = .043$), such that low control subjects read more of these benefits than did high control subjects (1.76 versus 1.29, respectively). The finding that low control subjects read more of the information is somewhat contrary to the hypotheses; however, the fact that these subjects compared to high controls were more attentive to nonprevention benefits is not surprising.

Anxiety and anxiety/control interaction were not influential. In addition, no effects were obtained for prevention benefits, prevention risks, or nonprevention risks.

Information "Preferences"

Anxiety over date rape influenced difference in quantity of prevention minus nonprevention information read ($F(2,190) = 6.747$, $p = .001$). Moderate anxiety subjects read more prevention information (.52), while high and low anxiety subjects read more nonprevention information (-.76 and -.27, respectively). Pairwise contrasts (planned t-tests) revealed significant differences between low and

moderate anxiety ($t(193) = 3.43$, $p = .001$, two tailed) and between moderate and high anxiety ($t(193) = -2.223$, $p = .027$, two tailed). Consistent with the hypotheses, moderate anxiety subjects chose to focus on information that might help them make prevention decisions.

Control over date rape also was a significant predictor of difference in quantity of prevention minus nonprevention information read ($F(1,190) = 4.381$, $p = .038$). Low control subjects read more nonprevention information, while high control subjects read more prevention information (-.29 and .31, respectively). Once again, the finding that low control subjects chose to focus on nonprevention information is consistent with expectations.

No effects were obtained for preferences for prevention benefits over risks, nonprevention benefits over risks, or overall benefits over risks. No anxiety/control interactions were obtained.

Influence of Anxiety and Control Over Health

Consistent with the hypotheses, health anxiety and control did not influence any of the measures related to date rape decision-making.

Influence of Generalized Anxiety and Control

Results showed that several of the date rape decision-making measures -- reading and decision time, and

discrepancy measures -- were influenced unexpectedly by generalized anxiety and control.

Reading and Decision Time

General control had a significant impact on date rape decision time: $F(1,190) = 7.615$, $p = .006$. Contrary to what might be expected, low control subjects, compared to high control subjects, took longer to choose the best decision for them in the date rape scenario (37.41 versus 31.65 seconds, respectively).

General control had a significant effect on average time reading nonprevention risks, as well: $F(1,190) = 4.944$, $p = .027$. Low control subjects, in contrast to high control subjects, took longer to read each nonprevention risk (7.95 versus 5.82 seconds, respectively).

No effects were obtained for prevention benefits, prevention risks, or nonprevention benefits.

Discrepancies From An Orderly Information Search

Low control subjects exhibited more discrepancies from an orderly search of benefits and risks than did high control subjects (2.49 versus 1.75, respectively; $F(1,190) = 5.648$, $p = .018$). Since both groups' scores were less than 3, it is evident that many subjects did not sample information from all four blocks of information (i.e., prevention benefits, prevention risks, nonprevention

benefits, nonprevention risks). However, low control subjects' mean score, being closer to 3, indicates that these subjects were more likely than high control subjects to sample several different types of information; this is inconsistent with the hypotheses.

As for discrepancies from an orderly search of prevention and nonprevention information, low control subjects obtained a discrepancy mean of 1.20 and high control subjects obtained a mean of .83 ($F(1,190) = 5.349$, $p = .022$). Consistent with the hypotheses, low control subjects apparently chose a type of information more than once on the average since their mean discrepancy score was greater than 1; however, inconsistent with the hypotheses, high control subjects did not read both types of information on average (as indicated by a mean less than 1).

Summary of Date Rape Results

Compared to subjects reporting high control over date rape, low controls read more nonprevention benefits and more nonprevention information overall. Subjects with moderate anxiety over date rape read more prevention information, compared to low and high anxiety subjects, who read more nonprevention information. Anxiety and control over health did not influence date rape decision-making. Finally, compared to subjects reporting high general control, low controls took more time to make their decisions, spent more

time reading nonprevention risks, and were more likely to read several different types of information (as indicated by discrepancy scores).

Anxiety and control over date rape -- separately, but not in interaction -- influenced date rape decision-making. As hypothesized, health anxiety and control were not important; however, contrary to the hypotheses, general anxiety and control were important. Implications of these different beliefs for date rape decision-making will be discussed in the next chapter.

CHAPTER 5

DISCUSSION

Role of Anxiety and Control

The findings suggest that what individuals believe regarding their control over health behaviors, and to a lesser degree, how individuals feel about the health decision, contribute to how individuals make health-related decisions.

Domain-specific anxiety alone did not predict scores on any of the dependent variables (with the exception of one date rape decision-making measure). Anxiety by control interactions emerged for two of the birth control decision-making measures, but for none of the date rape decision-making measures. The effects of anxiety on various dependent measures usually formed the classic inverted "U" pattern, and generally were in the predicted directions. As will be discussed later, negative affect in the two domains may take slightly different forms.

Control beliefs influenced decision-making measures for both scenarios. Not only were domain-specific control beliefs important, but health and generalized control beliefs were as well. In general, regardless of how it was measured, control produced similar effects in this study: high control subjects, by virtue of their perceiving a great

deal of control over various situations, may have made their decisions about the issues and hence, did not attend to the information presented to them. Low control subjects attended to the information, but did so in a biased manner.

Subjects expressing low control over date rape, as well as low general control, read more nonprevention information in the date rape scenario. However, on birth control decision-making measures, low control subjects showed slightly different biases depending on which measure of control was employed: low control over birth control was associated with a bias for prevention and nonprevention benefits; low control over health was associated with a bias for prevention risks and nonprevention benefits; and low general control was associated with a bias for nonprevention benefits. Further, decision time was longer for subjects reporting low control over birth control, but was shorter for subjects reporting low general control.

All of the date rape results regardless of the measure of control, and the birth control results employing only the health control measure, are consistent with past research in the health domain (including Janis and Mann's own research): individuals with low control beliefs emphasize risks of prevention and benefits of nonprevention, while deemphasizing benefits of prevention and risks of nonprevention. In other words, low control individuals

attend to information that reinforces their failure to take preventive action.

Birth Control Use and Date Rape Prevention: Different Processes

Taken together, the results suggest that making decisions about pregnancy prevention and birth control use may involve different processes than making decisions about date rape and its prevention. General results regarding control beliefs were similar across domains, in that low controls seemed to spend more time and effort on the decision-making tasks than high controls; in particular, this was evident in subjects' final decision times across the two domains. But any comparability across domains ended there, and it is valuable to speculate about differences in the decisions themselves.

Several results involving the influence of anxiety reflect an underlying difference in these two prevention situations. As noted above, anxiety interacted with control to influence several of the birth control decision-making measures, while for the date rape measures, no interactions and only one main effect of anxiety were revealed. The date rape results occurred despite the finding that the anxiety over date rape scale was the most reliable of all scales. Recall that in Chapter 1, anxiety was defined as a nebulous feeling of anticipation resulting from uncertain danger, and

was distinguished from fear, which was defined as a feeling of anticipation over certain danger. It may be that subjects' feelings of anticipation over date rape are more like fear than like anxiety. Individuals may clearly define rape as forced sexual intercourse, and as a negative event that is temporally immediate with respect to some nonprevention behavior (e.g., being alone with a date whom one does not know very well). Relative to date rape, however, the outcome of pregnancy is temporally remote; one may not know for several weeks or months whether one is pregnant as a result of a sexual experience, and certainly, the outcome of actually having a baby occurs nine months after the act of intercourse. Further, it is possible to have unprotected intercourse and not become pregnant at all. Hence, the anticipatory feelings over pregnancy and birth control most likely conform to the definition of anxiety proposed in Chapter 1, while feelings regarding date rape are more characteristic of fear.

Related to these concerns was the finding that the control over date rape scale was the least reliable of all of the scales; both alpha and test-retest coefficients were below .50. Statements such as "I have been persuaded to have sex even if I did not want to do it" (item 39), and "I would not know what to do if a date tried to force himself on me" (item 54) might have been very difficult to evaluate because of differing definitions of date rape. Although

people agree on what constitutes violent rape by a stranger, research has shown repeatedly that both men and women disagree (within and between groups) on what constitutes date rape; for example, some people believe that it is acceptable for a man to force a woman to engage in sex if the woman has said "no" but has given the slightest indication of being interested (Katz & Mazur, 1979). It may be that the poor reliability of the control over date rape scale is symptomatic of these differing definitions; that is, how can one decide how much control one has over date rape when one cannot decide what date rape is? Questions of whether women can control their contraceptive use or their fertility may be easier to evaluate, for people generally agree what constitutes a successful outcome.

Another difference between the domains was revealed even before data were collected, while the benefit and risk information for the domains was being written. Many of the benefits and risks of birth control use and pregnancy centered around medical issues such as side effects of birth control methods, physical feelings associated with pregnancy, and prevention of sexually-transmitted diseases. Social and interpersonal outcomes related to birth control and pregnancy were included, as well, but were more integral to information about date rape. Both benefits and risks of date rape prevention and nonprevention focused upon maintaining interpersonal harmony and creating particular

impressions for others. For example, a risk of date rape prevention (e.g., confronting a date with one's unwillingness to have intercourse) was wrongly accusing the date of bad intentions and thus, not seeing the date again. A risk of nonprevention (e.g., not expressing one's feelings, and waiting to see what happens) was appearing to the date's friends as an "easy conquest."

These differences in benefits and risks between the two domains are important for several reasons. Issues of a social nature are of utmost concern to adolescents, particularly to adolescents who have just begun college and who are trying to find their niche. Experiences in the social realm are integral to the development of adolescent identity. It should be no surprise, then, that evaluation of date rape benefits and risks which focused upon social issues were guided by generalized control beliefs. Further, issues of a medical nature, even if an individual has not yet addressed such issues (e.g., birth control use), may be guided by health-related control expectancies. Examining the nature of the benefits and risks across the two domains helps to explain the effects of different types of control on the decision-making measures.

Janis and Mann's Model Revisited

Negative Affect

Although Janis and Mann's conflict model provided a useful heuristic for understanding individual health decision-making, the results of the present study showed that other factors need to be addressed. Negative affect, in the form of anxiety, seems to play a role in decisions in which the outcome is uncertain, such as in pregnancy prevention. But in other decisions -- regarding date rape, for example -- other forms of negative affect (e.g., fear) may have similar effects on decision-making. More sensitive survey measures, or perhaps interviews, would be needed to tap these subtle differences in affect.

This suggestion regarding affect is not inconsistent with Janis and Mann's original proposal, but it was not made explicit. That is, they proposed that other forms of negative affect, such as shame or guilt, may occur as postdecisional regret, but they believed that anxiety would prevail while an individual surveyed and weighed alternatives prior to a decision. An important modification to the model, then, would be to allow for subtle differences in this pre-decisional negative affect depending on outcome probabilities.

The nature of control beliefs, and their effect on decision-making, must also be reevaluated. Results showed that domain-specific and health-related control beliefs largely were responsible for subjects' attention to information in the birth control scenario, but in the date rape scenario, generalized control beliefs were more influential. It may be that these results reflect individuals' use of specific expectancies in more familiar domains, and use of generalized expectancies in less familiar domains (e.g., Strickland, 1978). Date rape is a topic that has received increasing attention in recent years, but one that many young women do not yet understand. Without specific expectancies about the issue, individuals' rely on more generalized expectancies to guide their behavior. That is not to say that a woman has to have experienced rape, or to have had an unintended pregnancy, to develop specific control expectancies regarding the issues; deliberate thought about the issues, accompanied by vicarious learning (i.e., hearing about actual experiences of women who have confronted these issues), would be sufficient.

Specifying the effects of control in Janis and Mann's model was valuable. However, many subjects in the present study might have thought about birth control and date rape already, and perhaps made decisions about these issues.

Control beliefs may exert different effects on attentional measures like those used here, depending on where the individual is in the decision-making process.

This reasoning seems particularly relevant for birth control scenario results. For example, an additional analysis showed that subjects using a reliable form of birth control reported much higher control over birth control than those using an unreliable method or abstaining. In general, both high and low control subjects (regardless of how control was measured) performed the decision-making task efficiently. That is, high control subjects did not attend to the information as much as low control subjects. For the high control subjects, this information may have been redundant with what they already know, and might have been useless if their decisions have already been made. The low control subjects might have been spending more time on the available information in an attempt to gain control.

Thus, control and decisional commitment may have been confounded in this study, such that high controls had made decisions and low controls had not. It would be essential to compare high and low control individuals, all of whom were at a pre-decisional stage, to assess effects of control on decision-making. Further, the range of control beliefs may have been somewhat restricted in the sample. University students know that they have free and/or low-cost birth control counseling and devices available; some of the low

control subjects in the present sample may still express more control than some low control non-college women.

Measures of Decision-Making Quality

The theoretical framework proposed in Chapter 1 focused on cognitive aspects of decision-making: beliefs about control, beliefs about consequences, and attention to relevant information. In the present study, reading time and quantity were observed; these are measures widely used in decision-making research and in more basic research on anxiety's effects on cognition. Other factors, such as emotions, past experience, social pressures, and religious beliefs, also contribute to decision-making. The relative contributions of these factors to the process need to be determined.

Subjects in this study had a variety of information presented to them in "menu" form; real-world analogues of this might be browsing books on library shelves, or scanning a display of informative pamphlets in a doctor's waiting room. However, in daily life, individuals do not always have all types of information readily available. Part of the decision-making process involves information seeking, that is, actively obtaining information that is not at one's immediate grasp. Past research has shown that health-related control influences information-seeking (e.g., Wallston, Maides, & Wallston, 1976). The joint effect of

anxiety and control on information-seeking behavior would be a promising area for future research.

Another issue that was not addressed in the present study, nor by Janis and Mann's original work, is what constitutes optimal decision-making. As discussed earlier, low control subjects in this study might have been reading more of the information in order to gain control; high controls, in contrast, did not read as much, perhaps because the information was redundant with what they already knew, or perhaps because they had already made satisfactory birth control decisions. For all of these subjects, then, their decision-making strategies were optimal. However, it was hypothesized that more attention to the information indicated higher quality decision-making. In addition to prior decisional commitment influencing what is "optimal," there may be an empirically-definable optimal range of effort: below the range, attention to information is inadequate, and hence, any commitment may be premature; above the range, attention to information is obsessive and counterproductive, and hence, commitment may be difficult.

In sum, future research might focus on different ways to assess decision-making and attempt to define what is optimal as a function of individual differences in anxiety and control.

Evidence for Decision-Making Patterns

As has been discussed, it was likely that many of the subjects in the present study had already thought about birth control, and perhaps also about date rape. The patterns that Janis and Mann described -- vigilance, hypervigilance, and so forth -- were predictions regarding attention to relevant information as a function of anxiety, prior to making a decision. Janis and Mann's patterns were not clearly revealed, possibly because many of the present subjects had already made decisions about birth control, and because subjects were not asked about their previous behavior. Furthermore, differences in negative affect regarding the two issues (i.e., fear of date rape versus anxiety over unintended pregnancy), in addition to problems in subjects' assessments of their control (i.e., especially regarding date rape), made it difficult to investigate these patterns in the present study. Clarifications in the definitions of anxiety and control (as discussed earlier) may help to reveal the patterns that Janis and Mann intended.

Effects of control on information "preference" measures, such as differences in reading times for nonprevention benefits minus nonprevention risks in the birth control scenario, were in the predicted directions. Compared to high control, subjects reporting low control either over health or over life in general spent more time

reading nonprevention benefits than nonprevention risks. Janis and Mann's defensive avoidant and unconflicted adherence patterns were classified as low control; as Janis and Mann described, both of these patterns are characterized by biased information searches (the former pattern more so than the latter). The present results confirmed this characterization. High controls showed less of a "preference," and when they did, they spent more time reading nonprevention risks. Furthermore, high control/moderate anxiety subjects -- the vigilant pattern -- spent fairly equal amounts of time reading both types of information, as hypothesized.

The finding for single date rape measure influenced by anxiety -- difference in quantity of prevention versus nonprevention information read -- reflects Janis and Mann's patterns, and reflects basic research on anxiety. Subjects reporting moderate anxiety over date rape read more prevention information, but subjects reporting low or high anxiety read more nonprevention information; this is the classic inverted "U" pattern.

Thus, although Janis and Mann's decision-making patterns defined by an anxiety/control interaction were not revealed as clearly as hypothesized, the results of the present study were in the correct directions. These findings should encourage future research on individual patterns of decision-making.

Implications and Conclusions

At a time when people are more health-conscious than ever before, and when more sophisticated health information and technologies are available to the public, it is puzzling to see individuals who do not take advantage of such resources. The media issue reports daily about the myriad health risks and what might be done to avoid these risks. Every individual is vulnerable to some health risks, but adolescents are likely to be particularly vulnerable because of their sometimes risky lifestyles. Why is it that people who have health information and technologies at their disposal still neglect taking preventive actions? The present study has contributed further evidence for the importance of control and anxiety on individuals' health behavior.

Past research has shown that fear appeals in the health domain rarely are effective for mobilizing preventive behavior. Concern or anxiety may be necessary before an individual will consider changing a behavior. However, without some perception of control over the recommended behavior and over the outcome, "scare tactics" are quite counterproductive.

Pregnancy, birth control, and date rape are issues that concern adolescent college women. Individual differences in feelings, beliefs, and experiences influence whether decisions regarding these issues will be well- or ill-

informed. An understanding of individual differences in anxiety and control would be valuable for educators and counselors of adolescents. An assessment of these individual characteristics, perhaps coupled with an assessment of what an individual already believes about certain birth control methods or about date rape, would allow a counselor to present the information necessary to give an adolescent a more unbiased view of the issues. For example, the present study showed that individuals reporting low health control chose to read more prevention risks and nonprevention benefits in the birth control scenario. A counselor would be wise to focus on prevention benefits and nonprevention risks in an attempt to facilitate control through information.

This emphasis on control in the health domain is paramount. A balanced view of benefits and risks of various health alternatives is a necessary but not a sufficient condition for decision-making. Individuals must believe that they have options. Individuals also must be encouraged to make decisions that ultimately will be satisfactory to them. For example, many of the nonprevention benefits and prevention risks in the date rape scenario dealt with making a good impression for others and with pleasing one's date. Subjects reporting low control over date rape or low general control read more of this information. Although interpersonal harmony is a worthy goal, an overemphasis on

it can result in decisions that are uncomfortable, perhaps even dangerous, for the individual. Consistent with Janis and Mann's "decisional balance sheet" methodology, such individuals must be counseled in a more efficacious weighing of benefits and risks, and future research should focus on how this could be accomplished.

Knowing that control expectancies may facilitate some adolescents' decision-making and hinder others' affords additional ammunition with which to attack the problem of effective health education. It is important to instill beliefs of control over sexually-related topics in adolescents who may be guided by misinformation and myth, or who may be prematurely swayed by peer pressure into sexual activities. Some of the anxiety may be alleviated when the myths are dispelled. More of the anxiety may be alleviated when adolescents see that there are options available: to have sex or to abstain; to use the pill or to use a condom; to have an abortion or to carry a pregnancy to term. Each of these decisions has benefits and risks that should be considered, and each decision has implications for one's future. The findings of the present study suggest ways to facilitate more effective decision-making regarding these health issues. Practitioners, who are armed with knowledge of how individual differences bias attention to health-related information, may give adolescents the information they need to make satisfactory decisions.

APPENDIX A

Informed Consent Form and Questionnaire

Consent to Participate in Research

This is a survey of attitudes toward several health issues relevant to college women: pregnancy, birth control, and rape. You will be asked to rate your degree of agreement with some statements dealing with these topics. In addition, you will be asked to provide some personal information about yourself, your parents, and your own health practices and experiences.

ALL INFORMATION THAT YOU PROVIDE WILL BE HELD COMPLETELY CONFIDENTIAL. Your name will not be associated with your responses, but only a three-digit code number.

Participation in research is entirely voluntary. You may refuse to participate or withdraw from participation at any time. You will receive one experimental credit for completing the attached questionnaire.

In a couple of weeks, students who fill out this survey will be asked to participate in a related project. Please provide your phone number and address below, along with the best times to reach you, so that we can contact you when the time comes.

****
Since many students like yourself will be asked to complete the survey, PLEASE DO NOT DISCUSS THE DETAILS OF THE SURVEY WITH ANYONE. The reason for this request is that anyone with advance knowledge of the questions will not be able to answer in a natural and honest manner.
****

If you have any questions, please feel free to see Barbara Watters, 519 Tobin, 545-0794.

THANK YOU VERY MUCH FOR YOUR HELP.

SIGNATURE:_____ DATE:_____

NAME (PRINT PLEASE):_____

LOCAL ADDRESS:_____

_____

PHONE NUMBER:_____ COURSE NUMBER:_____

TIMES TO REACH YOU:_____ INSTRUCTOR:_____

INSTRUCTIONS: For items 1 - 61, please indicate how much YOU agree with each of the statements. If you STRONGLY AGREE with the statement, circle a "9." If you STRONGLY DISAGREE with a statement, circle a "1." Use the numbers in between to indicate varying degrees of disagreement or agreement. Please circle only ONE number for each statement.

Please try to answer the questions as honestly as you can, and do not spend too much time on any one statement or question.

1. I worry about whether birth control is effective in preventing pregnancy.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

2. If a boy would take me out for a fancy dinner date, I would be afraid that he would expect sex from me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

3. If I used birth control, I would be afraid that it would not work.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

4. If I take care of myself, I can avoid illness.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

5. The possibility of my becoming pregnant accidentally does not bother me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

6. There is a direct connection between what I do and whether I succeed or fail in life.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

7. It bothers me to think about the diseases that are going around these days.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

8. Whenever I go out on a date, I worry about the possibility of being forced to have sex.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

9. The possibility of my being raped while on a date frightens me.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

10. If I get pregnant, the fault lies completely with my partner.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

11. I am afraid that if I kiss my date, he might assume I want to have sex.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

12. Thinking about an unplanned pregnancy makes me feel sick.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

13. I do not worry about little things.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

14. Thinking about getting raped by a date scares me.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

15. I feel nervous about using birth control.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

16. I feel sick when I think about the possibility of being raped by a date.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

17. I feel anxious that if I am alone with a boy, he might try to force himself on me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

18. It scares me to think of all of the things that could go wrong with my health.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

19. I hate to think about the possibility of getting sick.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

20. I have a great deal of control over preventing unwanted pregnancies.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

21. I feel afraid when a boy touches me that he might force me to have sex.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

22. The possibility of an unplanned pregnancy at this time in my life makes me anxious.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

23. I try not to let little disappointments get to me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

24. I am suspicious whenever a boy asks me to visit his dorm room or apartment.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

25. I am afraid when I think about what might happen to me in the future.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

26. Thinking about using birth control makes me feel anxious.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

27. I do not worry about my health.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

28. Whenever I see articles in newspapers and magazines about preventing date rape, I make sure to read them.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

29. If I were to have sex, I would worry about getting pregnant.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

30. I would be very frightened if I had to defend myself against a date who tried to rape me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

31. I am a nervous person.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

32. When I am on a date with someone I know fairly well, I do not think rape is possible.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

33. I can get things done if I set my mind to it.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

34. For me, obtaining birth control information is very easy.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

35. If I see that a date is trying to force me to have sex with him, I know that I could defend myself effectively.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

36. It is fairly easy to avoid pregnancy if I use a good form of birth control.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

37. My avoiding pregnancy is largely a matter of good luck.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

38. It would be my own fault if I became pregnant.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

39. I have been persuaded to have sex even if I did not want to do it.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

40. There is not much I can do to avoid an unwanted pregnancy.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

41. I do not let myself get forced into sex if I am not interested.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

42. I believe I can avoid pregnancy without birth control because I know when my "safe" times of the month are.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

43. Having sex during my period is a good way to avoid getting pregnant.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

44. For me, obtaining birth control devices is very difficult.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

45. I cannot become pregnant the very first time I have sex.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

46. If I want to avoid pregnancy, I have to take responsibility for using birth control.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

47. I can pretty much stay healthy by taking good care of myself.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

48. I make my feelings known to a date if I am not interested in having sex.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

49. I am not sure I am strong enough to resist if a date forces me to have sex with him.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

50. Generally, I think I am a competent person.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

51. The side effects of certain birth control methods scare me.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

52. Whenever I am on a date, in the back of my mind I am aware of how I could escape in case my date tries to rape me.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

53. Sometimes I feel like what happens to me in life is out of my control.

1 2 3 4 5 6 7 8 9
STRONGLY DISAGREE — STRONGLY AGREE

54. I would not know what to do if a date tried to force himself on me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

55. It is not necessary for me to use birth control because I do not have sex often enough to get pregnant.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

56. I am in control of my health.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

57. Thinking about getting pregnant at this time in my life scares me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

58. Whatever goes wrong with my health is my own fault.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

59. For me, using birth control consistently is very easy.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

60. If I have sex only once, there is no way I can become pregnant.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

61. I actively try to prevent situations in which getting raped on a date is a possibility for me.

1	2	3	4	5	6	7	8	9
STRONGLY DISAGREE								STRONGLY AGREE

The following items ask you some questions about yourself and your health experiences. Follow the directions in each question on how to respond.

62. What is your age? _____
What is your year in school? (circle one) FR SO JR SR

63. Your primary birth control method used in past six months (circle one only):

a. pill
b. diaphragm
c. IUD
d. condom
e. rhythm
f. other -- specify:_____
g. not applicable (have not had sex)
h. have had sex without birth control

64. Other birth control methods you have used in past six months (other than one specified above; circle all that apply):

a. pill
b. diaphragm
c. IUD
d. condom
e. rhythm
f. other -- specify:_____
g. not applicable (have not had sex)
h. have had sex without birth control

65. How many sexual partners have you had in the past six months? (circle one answer only)

a. 0
b. 1
c. 2
d. 3 or more

66. How many times do you estimate you have had sexual intercourse within the past six months? (circle one answer only)

a. 0 - 3
b. 4 - 7
c. 8 - 12
d. 13 or more

67. Do you have a "steady boyfriend" (someone you date exclusively)?

YES _____ NO _____

68. Have you ever been raped (forced to have sexual intercourse) by a date?

YES _____ NO _____

69. How would you describe your general health? (choose one only)

a. poor
b. fair
c. good
d. excellent

70. How many times have you been to the Health Clinic for any reason since you've been at UMass? (choose one answer only)

a. 0
b. 1
c. 2
d. 3 or more

71. IF YOU ANSWERED "NO" TO QUESTION 67 (TO INDICATE THAT YOU DO NOT HAVE A "STEADY BOYFRIEND"), how often do you go out on dates? (choose one answer only, OR leave blank if you said "yes" to 67)

a. very often
b. occasionally
c. very seldom
d. do not date at all

72. What is your primary religious affiliation? (choose one answer only)

a. Protestant
b. Catholic
c. Jewish
d. other -- specify: _____
e. no religious affiliation

73. What is your racial affiliation? (choose one answer only)

a. White (Non-Hispanic)
b. Black (Non-Hispanic)
c. Asian
d. Hispanic
e. American Indian
f. other -- specify:_____

74. Were you born in the United States? YES _____ NO _____

75. What is the highest level of education that your father completed? (choose one answer only)

a. elementary school
b. junior high
c. high school
d. associate's (2 year) degree
e. bachelor's (4 year) degree
f. master's degree
g. doctoral degree
h. I do not know

76. What is the highest level of education that your mother completed? (choose one answer only)

a. elementary school
b. junior high
c. high school
d. associate's (2 year) degree
e. bachelor's (4 year) degree
f. master's degree
g. doctoral degree
h. I do not know

77. What would you estimate is your parents' combined yearly income? (circle one answer only)

a. less than $10,000
b. $10,000 - $20,000
c. $20,000 - $30,000
d. $30,000 - $40,000
e. $40,000 - $50,000
f. more than $50,000
g. I do not know

NOW, PLEASE HAND IN YOUR SURVEY AND GET A CREDIT SLIP. IF YOU WOULD LIKE TO PARTICIPATE IN ANOTHER PROJECT (WORTH ONE EXTRA CREDIT POINT) ON ATTITUDES AND DECISIONS RELATED TO PREGNANCY, BIRTH CONTROL, AND RAPE, PLEASE MAKE AN APPOINTMENT WITH THE RESEARCH ASSISTANT BEFORE YOU LEAVE.

*** THANK YOU VERY MUCH FOR YOUR TIME !! ***

(PLEASE NOTE: THESE ARE ADDITIONAL QUESTIONS GIVEN AT THE TIME OF THE LAB SESSION IN PLACE OF THE PREVIOUS PAGE.)

71. How many times have you been to the Health Clinic for birth control information or devices since you've been at UMass? (choose one answer only)

a. 0
b. 1
c. 2
d. 3 or more

72. Please circle all of the following birth control methods you have used at some time in your life:

a. pill
b. diaphragm
c. IUD
d. condom
e. rhythm
f. other -- specify: _____
g. have had sex without birth control
h. not applicable (have not had sex)

73. How many times have you been pregnant?

a. 0
b. 1
c. 2
d. 3 or more

74. How many abortions have you had?

a. 0
b. 1
c. 2
d. 3 or more

75. How concerned are you about issues related to pregnancy and birth control? (By "concerned," we mean that you think about it often.)

1	2	3	4	5	6	7	8	9
NOT AT ALL CONCERNED								EXTREMELY CONCERNED

76. How concerned are you about issues related to date rape and rape prevention? (By "concerned," we mean that you think about it often.)

1	2	3	4	5	6	7	8	9
NOT AT ALL CONCERNED								EXTREMELY CONCERNED

APPENDIX B

Birth Control Scenario, Menu, Benefits and Risks, and Decisions

BIRTH CONTROL/PREGNANCY SCENARIO

Imagine yourself in this situation :

You are a college freshman, and you have been at college for several months now. You have been regularly dating a boy you met shortly after the semester started, and you and he really seem to like each other. The last two times you went out with him, you invited him into your room to watch television. Both times, you ended up having sex with him.

Even though you have known this boy a short time, you really like him. You seem to have many things in common. As you think about seeing him again, you realize that you are very attracted to him, and that you will probably continue having sex with him. But you have begun thinking about the possibility of pregnancy, and you are not sure you want that to happen.

At this point, you are not sure what you should do. You have heard about women getting pregnant by accident. You do not know whether you should stop having sex with him, or get some kind of birth control, or just wait and see what happens.

MENU

BENEFITS AND RISKS OF BIRTH CONTROL USE:

Possible Benefits:

1. prevention
2. respect
3. responsibility
4. worries
5. diseases

Possible Risks:

6. problems
7. mood
8. feelings
9. accidents
10. spontaneity

BENEFITS AND RISKS OF PREGNANCY:

Possible Benefits:

11. marriage
12. love
13. adult
14. babies
15. understanding

Possible Risks:

16. school
17. friends
18. pain
19. relationships
20. parents

TYPE THE NUMBER OF THE BENEFIT OR RISK YOU WOULD LIKE TO GET MORE INFORMATION ABOUT, OR TYPE 99 WHEN YOU ARE DONE.

BENEFITS/RISKS

BIRTH CONTROL

Benefits:

1. If you use the most popular method, the birth control pill, you practically are 100% assured of preventing pregnancy. Diaphragms or condoms, combined with spermicide, would also be high effective methods for you.

2. If you use birth control, your partner would probably have a great deal of respect for you. He would realize that you care for him, and are trying to do what is best for the both of you.

3. Using birth control is a responsible thing for you to do. It shows that you are willing to take responsibility for your sexual activity.

4. Using birth control would allow you to have sex with your boyfriend without constantly worrying about a possible pregnancy. You would probably enjoy sex more.

5. If you use birth control methods such as the condom or diaphragm, you may be protected against sexually transmitted diseases. Of course, you would also be preventing unwanted pregnancies.

Risks:

6. If you use certain forms of birth control, such as the diaphragm or the pill, you run the risk of developing short-term or long-term side effects. For example, the pill could cause you weight gain, mood changes, or even something as serious as increase risk of heart disease.

7. If you use some forms of birth control, they can "spoil the mood." For example, having to insert a diaphragm, or having your partner put on a condom, can interrupt the "passion" of the moment.

8. You might begin to feel guilty or anxious about using birth control, for a variety of reasons. For example, going to the clinic to ask for birth control can be embarrassing.

9. Even if you use birth control every time you have sex, there is still the possibility that you could get pregnant. Accidents can still happen to you, such as you not inserting your diaphragm just right, or your partner's condom slipping off at a bad time.

10. If you get some form of birth control, it makes you look like you are planning to have sex. Sex might not seem "spontaneous" for you any more, because your birth control method prepares you for it.

PREGNANCY

Benefits:

1. If you got pregnant, your boyfriend would probably want to marry you. Otherwise, it could be several years before he even mentions marriage to you.

2. Having a baby would give you a person who would be dependent on you and love you very much. And, the baby would give you someone to love and take care of.

3. Getting pregnant and having a baby would make you seem more "adult." Since your parents or relatives may still treat you like a child, getting pregnant would force them to treat you differently.

4. Getting pregnant is exciting, and having a baby is something wonderful for you to look forward to. Your baby would be cute, cuddly, and lots of fun to play with.

5. Having a baby might make you eligible for government financial assistance or welfare. You might not have to worry about getting a job, because the government helps young mothers.

Risks:

6. You might be forced to quit school if you get pregnant, because many mornings you will wake up feeling sick and not feeling like going to class. And after you have the baby, you will not have time to go to school.

7. If you get pregnant, you will not feel like going out with your friends because you will be embarrassed about your appearance. And certainly, if you have a baby, you cannot just go out any time you want to.

8. Pregnancy might be a very uncomfortable thing for you. When you go into labor and get ready to deliver the baby, you will probably be in a great deal of pain.

9. You will have to pay for expensive medical bills when you get pregnant. Since you do not have a lot of money, it would be hard for you to get any kind of insurance to pay the bills.

10. If you get pregnant, your parents would probably be very angry at you. They would be very disappointed that you let that happen to you.

POSSIBLE DECISIONS

Consider these alternative decisions:

1. do not have sex at all
2. have sex and do not worry about birth control or pregnancy
3. have sex and use birth control
4. have sex, and if a pregnancy occurs, have an abortion
5. have sex, and if a pregnancy occurs, have the baby and keep it yourself
6. have sex, and if a pregnancy occurs, have the baby and give it up for adoption
7. other (something else not listed here)

Based on the benefits and risks you have read, which decision do you think would be best for you?

APPENDIX C

Date Rape Scenario, Menu, Benefits and Risks, and Decisions

DATE RAPE SCENARIO

Imagine yourself in this situation :

You are a college freshman, and you have been at college for several months now. You have met lots of nice people, and have gone out on a few dates. There is one male student, whom you see a couple times a week in one of your classes, who seems to be particularly interested in you. He invites you to a little sister party at his fraternity that Thursday night, and you eagerly accept his invitation.

When you arrive at the party, he meets you and brings you a drink. As you talk with him, you realize that you have several things in common. As the evening goes on, the music seems to get a little too loud for conversation, so your date suggests that you continue your conversation upstairs in his room. Once up in his room, he shuts and locks the door, and asks you to sit on his bed.

At this point, you are feeling a little bit uncomfortable. You have heard about women being forced to have sexual intercourse -- being raped -- by their dates. You do not know whether you should tell him how you feel, or get up and leave the room, or wait and see what happens.

MENU

BENEFITS AND RISKS OF DATE RAPE PREVENTION:

Possible Benefits:

1. prevention
2. alternatives
3. comfort
4. self-respect
5. testing

Possible Risks:

6. embarrassment
7. mistake
8. reputation
9. anger
10. maturity

BENEFITS AND RISKS OF NOT WORRYING ABOUT RAPE:

Possible Benefits:

11. fun
12. talking
13. sex
14. power
15. harmless

Possible Risks:

16. control
17. impressions
18. assumptions
19. excitement
20. consent

TYPE THE NUMBER OF THE BENEFIT OR RISK YOU WOULD LIKE TO GET MORE INFORMATION ABOUT, OR TYPE 99 WHEN YOU ARE DONE.

DATE RAPE PREVENTION

Benefits:

1. If you leave the room, you will be avoiding the possibility of rape. Since you have never been alone with him before, there is no way to know whether or not he will force himself on you.

2. If you told him that you feel uncomfortable in his room, perhaps he will suggest that you go and talk outside on the patio instead. There you would still be alone with him, but it would be easier to escape if a problem arose.

3. Either leaving or telling him how you feel will make you feel better. You do not really want to be on a date and feel uncomfortable.

4. If you take some action, you will be demonstrating to him and to yourself that you have some self-respect. You will be controlling what happens to you, and you will show him that you cannot be manipulated.

5. By expressing the way you feel, you are going to find out how sensitive and understanding he is. If he is a "creep," and he laughs at you or gets angry when you say you feel uncomfortable, it is better for you to find out now before you get too involved with him.

Risks:

1. You take the risk of embarrassing yourself in front of your date. There may be nothing to be afraid of, and you will end up looking "paranoid" and silly.

2. You may unfairly accuse your date of being a rapist. Obviously, if you really like him and you make that mistake, he will never speak to you again.

3. You may get a reputation as a "tease." You know that some guys assume that if you agree to go to their rooms, they also assume that you want to have sex.

4. If you protest his suggestions, he may get very angry with you. Getting angry may make him become violent, and he may hurt you.

5. You may embarrass him in front of his friends, if they see that you are not going to have sex with him. His friends may be watching to see whether he can "get what he wants" from you.

NOT WORRYING ABOUT RAPE

Benefits:

1. If you just wait and see what happens, your date will think of you as easy to get along with. Chances are he will ask you out again, because he knows you are a fun person.

2. If you stay in his room, you may end up just talking. You will have a great time, and have a chance to get to know him better.

3. If you stay in his room, you may end up having sex with him. Since he is such an attractive guy, you might enjoy it.

4. If you stay, you will make him feel powerful and "manly." Since you like this guy, making him feel good increases your chances of seeing him again.

5. Maybe all he wants to do is some harmless kissing and touching. By staying to see what happens, you will avoid "making a scene."

Risks:

1. If you stay in his room, you do not know whether he is planning to "take advantage of you." With his door locked, he has control over what goes on for the rest of the evening.

2. You may give other guys at the party the impression that you are "easy." Others may assume that you are going to your date's room for sex, and assume that they may do the same thing with you.

3. By going to his room, your date may assume that the only reason you are there is to have sex. So no matter what you really want, you do not have much choice if you do not tell him what you want.

4. If you stay, and go along with any kissing and touching that he wants to do, he might get sexually excited. You know that if some guys get sexually excited, they may "lose control" and insist on "going all the way."

5. If you stay, he might force you to have sex against your will. If you decide you want to contact the police and accuse him of rape later, the police may not believe you because you freely chose to go to his room alone.

POSSIBLE DECISIONS

Consider these alternative decisions:

1. stay in his room, and wait to see what happens
2. stay in his room, and tell him how far you want to go sexually
3. tell him that you feel uncomfortable, and would rather stay downstairs
4. tell him that you feel uncomfortable, and would rather go somewhere else to talk
5. other (something else not listed here)

Based on the benefits and risks you have read, which decision do you think would be best for you?

APPENDIX D

Feedback Sheet

FEEDBACK TO PARTICIPANTS IN THE
"PREGNANCY, BIRTH CONTROL, AND RAPE" STUDY

Thank you very much for your participation in this study.

This was a study of attitudes toward several health issues relevant to college women: pregnancy, birth control, and rape. This study was also interested in the kinds of decisions women make regarding these issues. We believe that women who feel particular levels of anxiety regarding these issues, and who feel different degrees of control over these situations, may make decisions about the issues more or less efficiently. The way women think about the advantages and disadvantages of taking preventive actions while making a decision may be influenced by anxiety and control beliefs.

****
Since many students like yourself will be asked to participate in the project, PLEASE DO NOT DISCUSS THE DETAILS OF THE PROJECT WITH ANYONE. The reason for this request is that anyone with advance knowledge of the questions will not be able to answer in a natural and honest manner.
****

If you have any questions about this study, please feel free to see Barbara Watters, 519 Tobin, 545-0794.

If you have any questions about pregnancy and contraception, please make an appointment with a qualified health professional. The phone number for making Health Center appointments is 549-2600; for information regarding pregnancy and contraception, call 549-2671. Contraception education sessions are held every week in room 302 of the Health Center, Mondays and Thursdays at 3:00 p.m., and Tuesdays and Wednesdays at 7:00 p.m.

If you have any questions about rape or other forms of sexual assault, there are several sources you could call: Everywoman's Center, Wilder Hall, 545-0883 (weekdays, 9 a.m.-7 p.m.) or 549-2671 (evenings and weekends); Department of Public Safety, Dickinson Hall, 545-3111 (for emergency transportation), 545-2677 ("K-COPS" -- the rape hotline); University Health Services, 549-2671. It is important to remember that only <u>you</u> have the right to decide whether or not to engage in sexual activities; no one else has the right to decide that for you.

Once again, thank you very much for your time.

APPENDIX E

Tables of Subjects' Demographic and Behavioral Characteristics

Table E-1

Demographic Composition of the Samples

Question	Category	Percent of the Sample of 223	Percent of the Sample of 82
age	17	8.1	9.8
	18	52.9	51.2
	19	30.9	22.0
	> 19	3.5	0
	missing	4.5	17.1
year	freshman	55.2	63.4
	sophomore	24.2	14.6
	junior	4.9	1.2
	senior	0.9	0
	missing	14.8	20.7
religion	Protestant	13.0	11.0
	Catholic	47.1	51.2
	Jewish	20.6	13.4
	other	3.6	6.1
	none	15.7	17.1
	missing	0	1.2

(continued on next page)

Table E-1, continued

Question	Category	Percent of the Sample of 223	Percent of the Sample of 82
race	White	91.5	92.7
	Black	2.7	1.2
	Asian	3.6	4.8
	Hispanic	2.2	0
	American Indian	0	0
	missing	0	1.2
U.S. born	yes	93.7	92.7
	no	5.8	6.1
	missing	0.4	1.2
father's education	elementary	0.4	0
	jr. high	1.3	3.7
	sr. high	20.7	22.0
	2-yr. degree	14.3	34.1
	4-yr. degree	28.3	24.4
	master's degree	21.5	9.8
	doctoral degree	11.7	2.4
	don't know	2.2	0
	missing	0	3.7

(continued on next page)

Table E-1, continued

Question	Category	Percent of the Sample of 223	Percent of the Sample of 82
mother's education	elementary	0	0
	jr. high	1.8	0
	sr. high	26.0	31.7
	2-yr. degree	24.2	41.5
	4-yr. degree	29.6	22.0
	master's degree	13.9	2.4
	doctoral degree	2.7	0
	don't know	1.8	0
	missing	0	2.4
combined family income	< $10,000	0.4	0
	$10,000 - 20,000	3.1	4.9
	$20,000 - 30,000	3.6	3.7
	$30,000 - 40,000	13.9	19.5
	$40,000 - 50,000	23.8	28.0
	> $50,000	39.0	24.4
	don't know	16.1	13.4
	missing	0	6.1

Table E-2

Behavioral Composition of the Samples

Question	Category	Percent of the Sample of 223	Percent of the Sample of 82
primary birth control method	pill	33.2	22.0
	diaphragm	0	0
	IUD	0	0
	condom	30.5	28.0
	rhythm	1.8	2.4
	other	1.3	3.7
	not applicable (have not had sex)	27.4	32.9
	have had sex without birth control	5.4	8.5
	missing	0.4	2.4
number of sexual partners, past 6 months	0	29.1	46.3
	1	50.7	32.9
	2	14.8	15.9
	3 or more	5.4	4.9
frequency of intercourse, past 6 months	0 - 3	41.3	53.7
	4 - 7	12.1	12.2
	8 - 12	8.1	4.9
	13 or more	38.1	29.3
	missing	0.4	0

(continued on next page)

Table E-2, continued

Question	Category	Percent of the Sample of 223	Percent of the Sample of 82
have a steady boyfriend	yes	58.7	43.9
	no	41.3	56.1
	missing	0	0
have ever been raped by a date	yes	7.2	6.1
	no	92.8	93.9
	missing	0	0
estimation of general health	poor	0	0
	fair	4.9	4.9
	good	63.2	62.2
	excellent	31.8	32.9
	missing	0	0
number of health clinic visits since been at UMass	0	42.6	53.7
	1	21.1	19.5
	2	13.9	12.2
	3 or more	22.0	13.4
	missing	0.4	1.2
frequency of dating (if no steady boyfriend)	very often	2.2	0
	occasionally	20.6	0
	very seldom	19.3	1.2
	not at all	0.9	0
	not applicable	57.0	98.8 *

* Apparently, these subjects misunderstood the question.

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